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Original Communications.

*MASTOID ABSCESS BREAKING INTO THE DIGASTRIC FOSSA.**

By B. Alexander Randall, M.D.†

GENTLEMEN:—This first patient was brought before you last week suffering with much pain over the right side of the head, and very deaf in the left ear, from which discharge had been flowing for a month or more, and in which a large polyp-mass was found, and promptly removed when first seen, ten days ago. He presented decided fluctuations of temperature, the rises not being preceded by any notable rigors, however. His tongue was heavily coated, and his aspect was haggard and anxious. There was marked red swelling behind the ear, which pitted deeply on pressure, and the mastoid was found increasingly tender as the finger was passed down towards its tip. The mouth could be but partially opened by reason of tender swelling at the angle of the jaw, and the neck was a little stiff. An incision down upon the bone had reached no pus, deep palpation failed to prove the existence of fluctuation at any point, and his condition seemed slightly improving

* The substance of a Clinical Lecture delivered at the University Hospital on January 25.

† Clinical Professor of Otology in the University of Pennsylvania.

under rest in bed, frequent hot poulticing, and general measures. So expectancy was continued, although the probability of mastoid trephining was discussed. The serious yet doubtful character of the form of mastoid empyema, which tends to open inward upon the digastric fossa and burrow down the neck, perhaps along the sheaths of the great blood-vessels, was referred to, and the case considered likely to belong in that category.

The event has proved the correctness of the assumption, for two days later there could be less doubt as to fluctuation beneath the sterno-cleido-mastoid: and all uncertainty was removed when, after thorough cleansing of the auditory canal, it could be promptly refilled with pus by pressing upon the deep swelling below the angle of the jaw. Under ether the previous incision was enlarged, and the outer surface of the mastoid process laid bare, and, finding it still apparently normal, I carried my chisel, with which I was detaching the periosteum, along the anterior surface of the process. Here a softened area was soon found and readily opened, promptly evacuating half an ounce of very fetid pus. The small opening was enlarged with the gouge and spoon until most of the tip of the mastoid was removed, and only firm, healthy bone could be felt, the interior being found full of pus and flabby granulations. Its inner surface, towards the digastric fossa, was largely destroyed; and the pus cavity there present was as large as a plum, and extended down and in upon the carotid and jugular. Syringing was now employed freely into the auditory canal; all recognizably pathological tissue had been removed, and the proximity of the great vessels and important nerves forbade unnecessary exploration, so the wound was packed with gauze and very firm pressure applied.

After five days, you see the gain which has resulted. All œdema is gone from behind the ear, the swelling is much less, the tenderness lost, except in the vicinity of the wound, and the sanious purulent discharge is moderate and free from odor.

The irrigation fluid passes out of the auditory canal and also into the pharynx,—the latter a point of importance in its relation to the use of sublimate or carbolic solutions in the ear. The abscess cavity of the neck seems to have healed perfectly, and the probe passes only upward towards the mastoid antrum, and touches only smooth granulating surfaces. The hearing, though defective, is already returning, the drum membrane shows but a small, clean perforation, and the general conditions as to pain and fever have greatly improved. He eats and sleeps well, and gives every promise of a speedy and complete recovery.

Before entering upon a further discussion of this rather rare and dangerous form of disease, I will refer to two other cases which I have recently met, which will illustrate its less serious phases.

Mrs. Ellen B., aged 45, Irish, came under my care on August 5 of last year, having suffered for years with more or less discharge from her left ear, but for several months having severe ear pain, now of the whole left side of the head. There was decided œdema of the mastoid, and slight, deep fluctuation could be felt towards the lower part of the process. There was some tenderness, but no apparent burrowing down along the sterno-cleido-mastoid. Under ether the usual incision of the soft parts back of the auricle was made to the bone, without evacuating any of the pus, and the periosteum was detached backward without revealing any pus or softened bone. Passing forward along the bone, an abscess as large as a hen's egg was found within and below the tip of the mastoid, and the probe entered more than three inches, reaching to the sheath of the great vessels. The bone sinus could not readily be found, but irrigation passed out freely by way of the auditory canal; so a drainage-tube was inserted to the bottom of the wound, and a firm compress bandage applied over the gauze-packing. During her four weeks' stay in the hospital, irrigation was daily employed, with drainage by soft or hard tube, gauze, or seton. She was discharged practically free from pain or fever, with the ear dry, and but little discharge from the closing sinus; and, after two or three weeks of further attendance at the dispensary, she was dismissed with complete relief, firm healing, and good hearing in the affected ear.

In a more recent case seen in consultation, the patient gave a history of a post-auricular abscess on the right, which had been evacuated a year before by the aurist in whose care he was, and healed in a few weeks, with little scarring. For the two weeks past he had been suffering severely with an acute inflammation of the left ear, and apparently rather worse than better after a paracentesis of the tympanum. He was further discouraged by the painful swelling of the whole aural region, including the neck below.

Fluctuation was vaguely felt beneath the œdematous and infiltrated tissues, but pressure failed to fill the canal with pus after it had been cleansed. There was marked swelling of the upper posterior wall of the canal, and one or two openings in the anterior part of the membrane, so far as could be discovered through the greatly swollen meatus. Deafness was extreme, the mouth could hardly be opened, and the pain, swelling, and fever were on the increase, so exploratory incision was advised. This was done under ether, revealing firm bone upon the mastoid process; but a considerable abscess was reached through the fibres of the sterno-cleido-mastoid, and the probe and spoon revealed a bone sinus on the digastric surface of the mastoid process. This was curetted smooth, the walls of the pus cavity were scraped, except in the neighborhood of the great vessels, and irrigation passed with fair freedom through the auditory canal. The upper posterior swelling within the meatus was freely incised, after the small anterior opening had been enlarged, and both canal and lower wound were tamponed with gauze, and the firmest possible pressure applied over the swollen neck tissues. The dressings were changed next morning and each succeeding day, with hot carbolized irrigation, and renewal of the packing in the wound. He had little discharge when I last saw him, six days after the operation; the pain, swelling, and deafness were lessening, and he bade fair to make a prompt recovery.*

Turning now to the general aspects of the matter, I may repeat that, since attention was first clearly called to this form of mastoid abscess by Bezold, in 1881, it has been rather infrequently reported by various observers as a very grave and fortunately rare lesion. J. Orne Green, who had thirteen cases among his eighty operations, recently reported, dwells upon the difficulties which they present. Four cases of this character were recently reported by Moos, three of them terminating fatally, although in one at least this was due to an unrelated condition,—pulmonary tuberculosis. In the fourth case, in spite of symptoms of thrombosis of the lateral sinus, and with only swelling along the posterior wall of the meatus, to draw attention to the mastoid, he limited his operation to opening the antrum, and brought his patient safely through. A sclerosed condition of the cortex of the mastoid was found by him, as by Green and others, and doubtless forms as important a factor in the determination of this form of the disease as the thin or dehiscent character of the digastric surface of the mastoid, upon which Bezold laid stress in his original paper. In the discussion following the report of one of these cases by Kiesselbach at Nuremberg, in 1890, Bezold stated that he had changed his method of operating, and now opened the antrum in the usual way; further draining the neck abscess, if required, by incision at the back of the sterno-mastoid.

As has been well pointed out by Green in his paper above cited, the seriousness of these cases depends largely upon failure to afford the required surgical relief at an early period. Prompt recognition of the condition is, therefore, very important; and the anatomical obstacles to diagnosis deserve a moment's consideration. In any case of mastoid empyema or caries, inflammatory symptoms of the overlying tissues, such as redness, swelling, or fluctuation, may be surprisingly slight or absent. The dense fibrous covering of the mastoid, consisting of the fascia, tendinous attachment of the sterno-mastoid, and the periosteum, often serves to confine the process, and may conceal it wholly from observation, even when the surface of the bone is carious. A thick outer table, whether pathologically condensed and sclerosed or not, may further serve to mask what is going on within; and when pus breaks out upon the median aspect of the mastoid, the whole thickness of the process and of the sterno-mastoid muscle buries it from ready recognition. Pain and deep tenderness are generally marked, however, with fever, stiffness, and swelling of the neck, interfering with free movement of the jaw, and often lifting the whole attachment of the sterno-mastoid into prominence. Palpation may reveal no certain fluctuation, and pressure may not, as in this case, force pus up into the auditory canal; indeed, the drum membrane may not have perforated, or it may have healed, shutting us off from any aid in this direction. General antiphlogistic treatment, with rest in bed, hot poulticing frequently renewed, and leeching, may be tried a day or two, while the question of a non-suppurative cellulitis is being decided; but an exploratory incision is early indicated both for diagnosis and as the best means of local depletion, and unless relief is soon gained, the investigation should be pushed

* Progress is reported by the medical attendant as well advanced. A fourth case of the same class has since been met, requiring trephining of the intact outer surface of the mastoid to empty the process of pus and granulations.

deeper and pus sought beneath or within the bone. As the inflammation has almost invariably extended from the tympanum through the antrum, the opening of the antrum to irrigation and free drainage is almost always indicated; but it hardly seems rational to pass by a mastoid tip, filled, as it often is, with flabby granulations and necrotic bone, or, resting content with a drainage that is little better than before, to leave a neck abscess that may already be eroding the great blood-vessels, or burrowing downward towards the pleura or pericardium, or inward behind the pharynx. Thorough following up of the pus, to secure its evacuation and the prompt healing of the abscesses from the bottom, and the removal without delay of as much as possible of the pathological tissues, seems to call for such measures as I adopted in the case before us; and I expect in future cases to attack the bone in this way near its tip whenever there is evidence of caries there, pressing my operation up to the antrum only when drainage in that direction cannot be otherwise obtained. Care must, of course, be exercised to avoid injury to the great vessels, and the facial and other nerves in the involved neck region; and the operation upon the bone is by no means free from the risks of opening the lateral sinus or the posterior cranial fossa. The hand-gouge serves well to detach the periosteum over the surfaces that have to be uncovered, to detect softened bone or fistulous openings upon the accessible surface, and to enter the bone even when firm and hard. Ivory-like sclerosis may call for the mallet to give it penetration; but I do not like much hammering about a brain that may be already in dangerous condition, and prefer a small trephine to effect an entrance, though I may lay it aside before detaching the button of surface-bone with the gouge. Within the mastoid the sharp spoon is generally most satisfactory and safe for removing granulations and diseased bone.

The after-treatment of these cases is still somewhat in dispute. Irrigation is generally necessary, and must be combined with drainage by tube, horse-hair, or gauze, and perhaps counter-opening of the neck abscess, if our pressure is to keep the cavity empty rather than dam pus in. A tube quickly clogs, and the drainage is around rather than through it; yet it is of service as a ready channel for irrigation, which can be done through it with rather less discomfort to the patient than is involved in renewing and replacing a gauze-packing. The fluid may pass to the pharynx through the Eustachian tube (or, as in one of my cases, directly), so care is needed to avoid trouble from this, and the non-poisonous peroxide of hydrogen has special value. Early closure is to be desired, but not at the risk of being premature; good surgical judgment is necessary here as elsewhere. The ear is generally to receive the routine treatment of a suppurative otitis media, while the general condition is apt to call for tonic and supporting measures.

ICHTHYOL AS A REMEDY FOR FACIAL ERYSIPELAS.

By S. J. Radcliffe, M.D., Washington, D. C.

THERE have been a number of cases of facial erysipelas in this city for the past month or two, and some deaths, and it is of interest to inquire from whence it came and how it came, whether it is following in the wake of influenza, as one pest follows another, as typhus follows cholera, or is only accidentally endemic or sporadic. Necessarily following this inquiry, the mode of treatment comes in for a share of attention.

Erysipelas has never been considered a contagious disease in the true sense of the term, like the eruptive fevers,—small-pox, scarlet fever, or measles; but was believed to be propagated by atmospheric or climatic influences, or a specific poison, like malarial fever from a paludal atmosphere or typhoid fever from sewage contamination, was supposed to be idiopathic, and to bear some resemblance to pneumonia, pleurisy, laryngitis, bronchitis, or angina. At present we know it is a contagious disease.

The old belief was that the condition of the blood had in some remarkable way something to do with its development, that the blood was either too rich or too poor, or "out of order" in some way, and hence "blood purifiers" were the only remedy. In our day, however, when micro-organisms are held to be the cause of all diseases, the erysipelatous microbe—the streptococcus erysipelatosus—is charged with being its chief, if not its only origin.

Erysipelas seems to be a true dermatitis, an especial or specific dermatitis, qualified by the term erysipelas,—an erysipelatous dermatitis. This particular erysipelas generally attacks the face only. Why it should attack the face, and a particular portion of the face in the beginning and not the whole face at once, is not known. It has its beginning, like

a wheal or spot of urticaria, or sting of an insect, and from that small area spreads to the entire face, sparing no portion, except perhaps the globe of the eye, the ears, scalp, or neck. The lymphatics are always affected,—swollen, inflamed, and tender,—and in many cases this is its point of departure.

It is believed at first to be a local disease, confined to the dermic tissues, extending to the subcutaneous area, and between the cutis and epidermis. The parts swell from serous infiltration, and become tense and shiny. But it may become constitutional if the local lesion is allowed to run on unchecked. Its tendency is to extend itself to the meninges of the brain, not by metastasis, but by simple extension, usually through the nasal passages, and it may be the consequence of the malignant character of the disease, or from incipient collapse.

Sometimes the delirium, which is often manifested, is due to fever alone, and not to implication of the meninges. Violent epistaxis may come on in such a condition and arrest its progress. I have seen such a result. It occurred in my own case, and was, doubtless, salutary. It acted as a revulsive, relieved the engorged vessels, and relieved the delirium. It is occasionally complicated with bronchial or with intestinal catarrh, with intense hyperæmia of the kidneys, or with catarrhal or croupous inflammation of uriniferous tubules, and it may end in gangrene. It is a disfiguring disease, and makes the subject of it look hideous, deformed, and unrecognizable, and it is not without its danger.

It is usually regular in its course, and terminates favorably in from six to twelve days, according to its degree of severity, and as to whether its type is mild or malignant. It is in the latter type, if complicated by or associated with a broken-down or depressed constitution, physical or mental overwork, with their congener,—anæmia,—that it becomes fatal.

Facial erysipelas is self-limited, is in a large per cent. of the cases remediable, is to a great extent self-curable, and gets well without the intervention of medicines. It may be true that erysipelas, as it ordinarily occurs, may require little or no treatment, yet this non-interference would not be the proper attitude for the physician, nor would it be satisfactory to the patient or his friends, and it would be very hazardous, for it frequently and unexpectedly takes on alarming symptoms, from its malignancy, and may cause death in a very few days.

The old plan of local treatment, by surrounding the diseased parts with iodine or nitrate of silver, with the notion that it would stop its extension,—arrest its spreading,—is, I am glad to say, now almost abandoned. No one knows how much injury such practice entailed. I was foolish enough in the beginning of my career to follow the teachings and promptings of my elders to pursue the same line of treatment, but I have long since discarded it for what I conceive is far better, or, at least, a practice more conservative and quite as successful. I saw the last of a medical gentleman, whose face was blackened beyond recognition, and unconscious, whose kind medical *confrères* could not save, notwithstanding they plied him vigorously, hypodermically, with whiskey and digitalis. This gave me additional proof that such proceedings were wrong. I have treated many a case successfully with no other application than wheat flour dusted over the face with an eider-down puff or soft flannel, and a few drops of muriated tincture of iron and a few grains of quinine, with plenty of liquid nourishment.

There is no doubt in the world that the simplest, most emollient, most soothing, and least irritating application is the best in these cases. If "striking in" can take place, it is certainly hurried or facilitated by irritant substances, which are calculated also to still further excite the inflammatory process and give a tendency to still further overload the already engorged dermic and subdermic tissues, and lead to gangrene.

The simple application of vaseline or coca-butter or olive oil, without the addition of mineral substances, as zinc or bismuth, will, in a large per cent. of the cases, be sufficient. I think nothing is gained by the application of the ice compress or by minute incisions, as recommended. I think it is time lost, and neither would answer in private practice.

I am quite pleased with ichthyol as a local application in this affection. The few cases I have treated with it may not be sufficient to form an opinion, but in each case I obtained uniform and unvarying success, and, as each patient exclaimed, it "acted like a charm."

I was directed to it, or influenced to use it, by the report of Dr. Klein (*Berlin. Klin. Wochenschrift*, September 28, 1891, and supplement, *British Medical Journal*, November 7, 1891), who regards it almost as a specific, from its powerful action in retarding the growth of the streptococcus erysipelatosus,

thereby shortening the average length of an attack of erysipelas by one-half. He finds the average duration of an attack, when ichthyol is used, only six days, three days after the actual application has been begun. He observed a marked action in lowering the temperature and allaying the fever. This is the experience I have had with ichthyol. In three days after the treatment was begun in my cases by washing off the applications, the improvement was manifest, and the fever never rose after the second day, but gradually declined. The ichthyol is not at all unpleasant, and was not objected to by patients. It makes the skin a dark-brown color, and, of course, looks unsightly while on, but it does not stain the skin, and is easily washed off. The bedclothing and pillows, as well as the garments of the patient, should be protected, as wherever it touches it leaves a brown mark, which is easily removed by washing. The best plan of using it is to compound an ointment of equal parts of ichthyol and vaseline or lanolin, or, if a weaker or thinner one is desired, equal parts of ichthyol, lanolin, and water will be better where a large cutaneous surface is under treatment. My plan is to order two drachms each of ichthyol, lanolin, and water, and have this applied uniformly over every part of the erysipelatous inflammation, ears, eyelids, and all, and repeat this at least twice daily. In three days, on washing it off with a little tepid water, and with or without a little lather of fine quality of soap, it will be found that the swelling has subsided, and the erysipelatous process has been arrested, except perhaps on the extreme borders. I have discontinued it after three days, and dusted the paler parts with flour, applying the ichthyol only to the outskirts, the irregular parts of the pinna of the ear and back of the neck. But a better plan is to continue the application until the sixth day, or until all traces of the disease externally have disappeared. This will not be beyond the fifth or sixth day. In addition to this, I order 10 drops of a mixture of thirty grains of quinine in one ounce of muriated tincture of iron every three hours, and nourish the patient well. The remarkable part of the treatment is that the temperature is at once reduced, and is not elevated again, never going beyond 100 or 102, and may be normal after the first day. No relapses have taken place in my cases, and convalescences were satisfactory and without sequelæ. I know of no more satisfactory remedy.

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SULPHIDE OF CALCIUM, OR CALX SULPHURATE, IN TONSILLITIS.

By Frank P. Norbury, M.D.,* Jacksonville, Ill.

ACUTE parenchymatous inflammation of the tonsils, in strumous patients, has a tendency towards rapid suppuration. The febrile symptoms are seemingly aggravated, while the enlarged tonsils cause difficulty and painful deglutition, from the onset of the disease.

Such cases suffer intensely and become greatly depressed by an attack of even a few days' duration. A neurasthenic condition often follows in the wake of such attacks. Especially is this noticeable among the insane, where the nervous phenomena are, no doubt, greater than in the sane. Observation of a number of such cases, where suppuration was marked, led me to use sulphurate of calcium, with the hope that Ringer's ardent advocacy of its use, in boils and other suppurative processes would, in a measure, relieve the suppurative condition present in these cases of tonsillitis. The results were most gratifying, and in three cases this winter I have aborted the attack. In one case, admitted to this hospital with tonsillar abscess, which broke on the day of admission, spontaneously, the prolonged convalescence, usual in strumous cases, was cut short, and an increase of bodily weight noticed within a few days.

In acute cases, I have been pleased with its results, suppuration being prevented, and the febrile symptoms, pain, etc., being greatly modified.

Small doses. (⅛ to ½ grain), frequently repeated, best subserve the therapeutic action of the drug. Antiseptic local treatment is indicated, and where suppuration has taken place, immediate evacuation of the pus should be made and the cavity thoroughly cleansed.

I prefer the method of Dr. G. V. Black, of this city, in the treatment of abscesses of the mouth and throat, which is briefly this: Peroxide of hydrogen, to which has been added a little oil of cassia. The oil of cassia—a thorough and efficient antiseptic—is, by the aid of the peroxide of hydrogen, thoroughly disseminated, even to the remote pockets of the abscess.

* Assistant Physician Illinois Central Hospital for the Insane.

NOTES ON USE OF COCAINE IN GENITAL IRRITATION IN MEN.

By Howard Wells, M.D.*

HAVING used cocaine freely in the treatment of nasal catarrh, and observed at the same time its power to soothe sexual irritability in men, I append notes of a few cases:

Case I.—Married, but unable to have access to his wife. He complained of intense and repeated sexual excitement and strong erections at night, recurring about weekly, disturbing his sleep, and persisting night after night, until terminated by an emission. He would not go to prostitutes for relief. Various remedies were tried without success. Finally, a four per cent. solution of cocaine, internally, gave entire relief. For three weeks he had no erection nor emission, and when the latter finally occurred, during sleep, it gave him no discomfort.

Case II.—Had lost his wife. Had recurring nightly erections, prolonged and distressing, also erections whenever he tried to urinate, so that the bladder was never empty. These periods of excitement recurred two or three times every month, and he found that by bringing on an emission at once he obtained entire relief for a time. Cocaine gave relief from the erections, and seemed to lessen the frequency of the nocturnal emissions with which each period of excitement ended. As this man practises masturbation only as a means of relief, and as the habit is almost discontinued, I hope for an entire cure. It is certain that the degree of sexual excitement is very much reduced. During the intervals of rest he does not use the drug. I have not repeated the dose more than once in a night.

Case III.—Had a stricture that was being continuously dilated. To relieve pain, I injected the solution (four per cent.) into urethra. It was noted that he had no erections for a long time after.

Case IV.—When first seen he had an extensive phagedenic sore on glans, that had opened the urethra behind the corona. He suffered greatly from nocturnal erections. These were promptly subdued by the use of a four per cent. solution to sore and to urethra.

Case V.—Presented himself with a deep ulceration of glans, due to neglected sore. He also had persistent nocturnal erections, and, finally, a tearing of the urethra. Cocaine applied to sore and urethra checked the erections and greatly lessened general erethism.

Case VI.—Unmarried; had been in rather intimate companionship with a girl, but had not had intercourse nor emission. Being of a nervous organization, his sexual organs were in a state of general erethism. The penis was constantly semi-erect, and urination increased the condition; the bladder was irritable at the same time. Here a four per cent. solution of cocaine was inhaled, in the form of spray, with quick and great relief. Urethral injection was objected to.

In cases of irritation of the glans or prepuce in growing boys, the solution, used locally, is often useful, and may prevent the formation of bad habits. In cases of wetting of the bed at night, due to irritation of the glans or prepuce, much benefit may be obtained from this treatment, in conjunction with removal of cause of irritation. These cases suggested to me the use of this remedy for chordee; but, as I have seen very few of such cases, I can say but little. Whenever I have so used it, there has been marked relief. The solution is to be injected into the posterior urethra (previously washed out by urination) before the patient retires for the night. The amount used varies, but about half a drachm is a fair average. If the patient's mind runs on sexual subjects, a grain of cocaine, inhaled as spray, will generally change the current of his thoughts. The tendency to insomnia produced is an objection, and sometimes the heart's action becomes irregular, but I have never seen dangerous disturbance. To avoid the insomnia, I tried combining opium with the cocaine, but have always lost all the benefits expected from the cocaine, and have done harm rather than good.

On several occasions I have been able to examine the male sexual organs after the free use of cocaine in treatment of nasal and pharyngeal catarrh. I have always found the penis much retracted, sometimes almost buried, and a decided reduction in the sensitiveness of the glans. Often, too, the scrotum was drawn up. Patients have sometimes wondered at this condition, especially when it has lasted some hours, and occasionally rather resented it, as an indication of feeble virility, or, at least, as an undesired interference.

* Surgeon United States navy.

POWDERED BEEF AS A FOOD IN THE TREATMENT OF PULMONARY CONSUMPTION.

By Thomas J. Mays, M.D., Philadelphia, Pa.

THE question of feeding is one of overshadowing importance in the treatment of pulmonary consumption, and any food preparation which adds even a seeming advantage in this respect is worthy of the attention of the clinical investigator. For some years I have been interested in beef products as food, and about six months ago I began to study the clinical effects of powdered beef, known under the name of Mosquera's beef-meal, in pulmonary consumption, both in hospital and in private practice, and take this opportunity to present the impression which I gathered from its use.

Mosquera's beef-meal is fresh lean beef, digested and preserved with pineapple juice, then dried and powdered. It has no pronounced disagreeable odor, is free from bitter taste, and is somewhat soluble in water. It is believed to represent all the constituents of fresh lean beef in a predigested state. As it comes from the manufacturer, the powder is in a pure state, or mixed with equal parts of powdered chocolate and sugar. It may also be mixed with sweetened hot coffee or milk, or with an eggnog. Frequently a little wine, brandy, whiskey, or rum may be added with advantage. It may also be administered with all kinds of broths and soups. The quantity which may be given varies from a dessertspoonful to a tablespoonful of the raw powder, four or five times a day. When it is served in hot coffee, cocoa, or milk it must be well stirred up and mixed.

I have given this preparation in all the varied forms and conditions of pulmonary consumption that came under my notice during the period of observation, and from this experience I believe that I am warranted in drawing the following conclusions:

1. *It is Palatable.*—No patient refused to take it. Most patients, however, preferred it mixed with chocolate. When the powdered beef, mixed with chocolate, is used as it comes from the manufacturer, it must be remembered that one-third only of the bulk is beef-powder, and that the balance is made up of equal parts of cocoa and sugar, and that three teaspoonfuls of this product represents, therefore, only one of beef-powder.

2. *It is Digestible.*—One of the most important points in the feeding of consumptive patients is the administration of that food which requires the least amount of energy on the part of the stomach to digest it. This consideration has long stimulated the desire to supply these patients with food in the most concentrated form, such as in beef-pulp, in freshly-expressed juices of beef, oysters, etc., which are not only readily digested, but just as readily absorbed and assimilated. I believe that beef-powder is equally digestible, for, so far as I have learned, it has not given rise to gastric disturbances of any kind.

While my experience has taught me the excellency of the fresh juices of beef, oysters, etc., in the treatment of the disease under consideration, and in others which are allied to it, it has also shown me that, at least in some instances, they cannot be taken for a protracted period without producing revolt on the part of the stomach. So far as I know, this is not the case so often with the beef-powder; for I have given it to patients, in dessertspoonful doses, every four hours daily, for three months, without any intolerance. If desirable, the two foods can practically be given at the same time, and where there is reason to fear that the patient may tire of both, the practitioner may advantageously alternate between the two, every second, third, or fourth day.

3. *It is Nutritious.*—In forming an estimate of its nutritive value, I am, of course, wholly guided by the clinical results which followed its administration. In most cases the patients improved in weight and gained in strength. In some cases the increase in flesh and the change from other food to the beef-powder were too intimately associated to be ascribed to anything else than to the greater food value of the latter preparation. I gave it to a few cases in which no increase in flesh took place, but this may probably be accounted for on the score of their hopeless state.

4. *It Aids the Digestion of other Foods.*—It is not only of easy digestion, but it seems to help the digestion of other foods. This property is of special value in the treatment of intestinal tuberculosis, where the surface of the stomach and intestinal canal is in a state of hyperexcitability, and where food, which in health is a normal stimulant, produces excessive peristaltic action, and consequently diarrhœa. Any agent, therefore, which enhances the breaking up and the digestion of food, is of great service in the treatment of this condition.

THE PRACTICAL APPLICATION AND THERAPEUTIC USE OF PLASTER OF PARIS.

By J. P. Mann, M.D.*

THIS is a very important material in many of the arts, and has lately become a very popular substance in certain lines of medicine and surgery. An attempt will be made in this paper to explain the process of making plaster casts and to give some practical hints on the method of preparation, preservation, and application of plaster of Paris. In order to give some of the details greater clearness, they will be discussed under appropriate classes of cases, and not in the general description of the subject.

The plaster casts are made for the preservation of correct models of various conditions and deformities for future reference and comparison, or that the physician, with the instrument-maker, may be able to form supporting-jackets, artificial limbs, and other mechanical devices.

A base-ball will serve to illustrate the process of casting. Into a basin holding about one pint of water sprinkle several handfuls of a medium grade of dry plaster of Paris until the mixture assumes a batter-like consistency. When nearly all the water has been taken up by the plaster, stir gently with the hand, and, if necessary, thicken with a little more plaster. Never pour water upon the plaster. If stirred from the beginning, the mixture will lack smoothness, and will often set too quickly for use. The mass is now poured out on a flat and solid surface, in such a manner that its depth exceeds, by at least a quarter of an inch, the half of the diameter of the ball. The ball is then pressed into the plaster mass until exactly one-half of it is covered, for to sink it further would necessitate the breaking of the mould on the removal of the ball. The top of the plaster next to the ball should be smoothed off while hardening, so as to leave a surface a half of an inch wide. After the lapse of about five minutes, the mould will be firmly set, and the removal of the ball at this time would leave an exact half negative of it in plaster of Paris. This, however, is not to be done. Sprinkle some lycopodium over the exposed half of the ball and negative, or coat them with some quickly-drying dental varnish, with the object of preventing the halves of the negative from adhering to each other or to the ball. A second mixture of plaster of Paris is now prepared and slowly poured over the ball. The operator with a knife, while the new half negative hardens, cuts away its edge, until the outside margin of the smooth surface made on the lower half negative is exposed. When the mould is thoroughly set, the upper half is gently lifted out or pried away, and the ball removed. The inside of the mould is now varnished and allowed to dry. If a small groove be made between the halves of the negative, as is seen in a bullet-mould, and the hollow space filled with a solution of plaster of Paris, a plaster ball, the exact counterpart of the original base-ball, will be formed. This is called the positive mould. Sometimes the mould must be made in several parts in order to remove the positive.

When making a negative of any part of the body, apply a coating of cosmoline or lard, which will prevent the sticking of the plaster to the fine hairs of the surface. This is important, as the pulling out of these hairs is very painful. During the process of hardening, considerable heat is generated in the mould, and it may become uncomfortably warm, but never sufficiently hot to do injury, although children will often cry from the warmth.

If, instead of a base-ball, a deformed foot is used to make the negative, we would in this way be able to obtain an accurate representation of the foot. A piece of raw hide, soaked in water to render it pliable, is stretched, and fastened over a positive mould until dried, when it becomes a stiff and close-fitting leather case. In this way leather and felt cases for the trunk and limbs are made. A coat of paint and varnish will make them more impervious to moisture, and also improve their appearance. A still simpler way of making these casts for larger parts of the body will be described further on.

Passing on to the consideration of plaster-of-Paris bandages, the proper material of which they should be made will now engage our attention. The ordinary surgical roller-bandage, crinoline, sized cheese-, and butter-cloth have been found inefficient. Unsized butter-cloth is preferable to any other material. It should be white, and not of a yellowish hue. The necessity of using this cloth exists in the fact that it is essential to have large meshes,—a good absorbent medium with large meshes. The meshes hold the plaster, and the hydroscopic quality facilitates the hardening process. The bandages should

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be about fifty-five inches in length, two inches in diameter, and from two and a half to five inches in width.

The narrowest bandages are used on the smallest parts of the body. A bolt of butter-cloth contains about sixty-six yards. Five yards of this are to be cut off, and folded lengthwise as they were when purchased. The edges of the fold must be even. With a sharp carving-knife the bandages are to be cut from the end of the folded piece of any desired width. A block of wood pressed on the roll will hold it still and guide the knife-blade. The bandages are now unrolled and dry plaster of Paris is spread over them with a knife, after which they are rerolled by hand or by proper machinery. Only in large hospitals is a bandage-machine necessary. Unless they are now wrapped in wax-paper or oil-paper, to exclude moisture, the bandages will not keep long, for the dry plaster readily absorbs moisture when exposed to the air.

A general outline of the proper method of applying plaster-dressing will now be given. As with the bandage material, so with the plaster case; in order to have rapid hardening, there must be placed immediately between it and the skin an absorbent material.

For this purpose, absorbent cotton or lint in rolls is best suited. Lint and cotton bandages are cut off from the pound rolls as wide as are wanted. Usually two layers of absorbent cotton are bandaged over the part, but where much swelling and discharge, following an operation or an injury, are anticipated, four layers should be used. The elasticity of the cotton decreases the danger from too great circulatory interference, through swelling of the part, and also protects soft tissues from harmful pressure against bony prominences. Being impervious to germs, absorbent cotton forms a part of many aseptic dressings.

A basin is now provided sufficiently filled with water to enable the surgeon to submerge his plaster-roller, and in the water is placed a handful of common salt, in order to make the plaster set more rapidly. If warm water is used, the plaster dressing will be more brittle, and in consequence more liable to break. The bandage is ready for use as soon as the bubbles of air cease to rise from it through the water; but it must not be disturbed or squeezed during the time that it is in the water or to any extent after it is taken out of the basin, for by so doing much of the plaster will run out. The plaster of Paris is now to be applied to the depth of about six layers, smoothing off each layer with the hand as it is put on. If everything has been prepared prior to the application of the bandages, and if they are quickly applied, a useful, strong plaster-of-Paris case will result, hardening in from three to five minutes; whereas, by the older method, it required from one to twenty-four hours before hardening took place. This great waste of time constituted a strong objection to the use of such dressings. The question as to the manner in which plaster-of-Paris cases should be removed is an important one. It is quite easy to cut them through with a bellied saw, not as if sawing wood, but by drawing the saw towards the operator. They may also be removed with a penknife, with large shears made for this purpose, or with a piece of fine wire laid under each layer, so that by pulling the wire it will cut its way out. Other plans of removal will not detain us. The method of removal by the saw is the safest, and therefore the best plan. One soon learns to know when he has cut through the plaster, and with care need never cut the patient.

Of the classes of cases in which plaster of Paris dressings are appropriate, let us first consider spinal curvature. A discussion of the causes producing curvature is not within the province of this article. If the deformity has existed so long as to preclude the possibility of its correction, the plaster of Paris jacket will support the spine and prevent further deformity. Where the curvature can be improved or cured the jackets are not worn while taking gymnastic or other curative muscular exercise. Cases in which a soft and yielding condition of the vertebræ exists require continuous support, and are best controlled by the plaster jacket. This may be applied over an undershirt which fits the body snugly, or the trunk may be enveloped in absorbent lint bandages. Absorbent cotton bandages are not necessary in these cases, because no operation is done to cause swelling or discharge.

The patient should be swung by means of a suspension apparatus or trapeze hanging from a hook in the ceiling, and the jacket applied while the patient is suspended. It is a mistake to swing the patient clear of the floor, as it is only necessary to stretch the body without producing too much discomfort. The jacket is to be carried up as high under the arms and as low down around the hips as will allow the freedom of the arms and legs when a sitting posture is assumed. By using a knife or strong shears the jacket can be

trimmed off wherever necessary, and can be cut through along one entire side, and with care sprung apart and slipped off in a line with the long diameter of the chest whenever desired. In this way ablutions and free muscular exercise can be obtained. In cases which are susceptible to improvement or cure, the patient is to be swung at the end of two weeks for the second time and a new jacket applied. Thus, little by little, a return of the spine to its normal position is accomplished. Where the sole object is to support the spine a jacket will generally last eight weeks. After the jacket has been cut and sprung off, and it has been reapplied, it can be retained in position by means of a surgical roller-bandage, or holes may be bored through its edges to allow of its being laced up. If the plaster jacket is removed, its cut edges brought into apposition, and one outlet closed by stretching plaster bandages across it, the result is a negative of the trunk. Into this negative may be poured a solution of plaster of Paris, and when this is set, a positive of the trunk will have been formed. This is the simplest method of making casts of the larger parts of the body, and from these casts can be made leather and felt jackets, such as have been already referred to.

In Pott's disease, or tubercular spinal ostitis, the plaster-of-Paris jacket takes first rank as a curative agent. If the disease is located below the middle dorsal vertebra, the jacket can be used alone; but, if the trouble is above the point mentioned, it becomes necessary to use the jury-mast in combination with the jacket. Thus, if the seat of the disease be in the cervical vertebræ, we must have a jury-mast in order to sustain the weight of the head. The lower end of the jury-mast is secured to the plaster jacket by carrying a few turns of a plaster bandage over it.

The object in these cases is to give complete rest, and to lift the weight of the head, arms, and shoulders so that the inflamed surfaces will not be constantly pressed upon. The jackets are applied over the undershirt or lint bandages, and cut open, as in cases of spinal curvature. If there are tender prominences along the spine, a little ring of cotton should be placed around them, just outside the lint or undershirt, or a hole may be cut in the plaster jacket large enough to relieve them of all pressure. By this method of treatment we cannot correct the deformity, but we may stay its progress and cure the disease.

A great mistake would be made if we attempted to use suspension in such cases, as it would surely hasten the course of the disease. All stretching, twisting, and motion of any kind should be, as far as possible, avoided. An assistant is to hold up the arms of the patient, or the patient is to be laid across two tables, which are far enough apart to allow the application of the jacket. The head and shoulders rest on one table, and on the other table the legs are placed. It is important for the physician to remember that in all cases, and particularly is this true of children, they should be seen at least once a week, unless the jackets have been cut through. Foreign bodies are frequently dropped between the jacket and the skin, and cause much trouble, and pressure upon bony prominences may result in ugly abrasions of the soft tissues. The jackets are useless when once broken, and then new ones should be put on.

(To be continued.)

AN EXPERIMENTAL STUDY OF CERTAIN ACTIONS OF STRYCHNINE IN EXCITANT AND PARALYTIC DOSES.

By Edward T. Reichert, M.D.,* Philadelphia, Pa.

(Concluded from page 248.)

THE RESPIRATION.—Klapp (*loc. cit.*) is the only one who seems to have made any special study of the actions on the respiratory apparatus. In fourteen experiments on rabbits he noted as a uniform result a decrease in the number of respirations, which occurred even after section of the vagi. It is evident, therefore, that the respiratory centres are depressed. On the other hand, Wood,† in experiments on dogs, in which the respirations had been arrested by anæsthetics, states that the injection of strychnine into the jugular vein always caused an extraordinary and rapid increase in the rate and extent of respiration, and that he had seen the respiration, which had practically ceased for ten seconds, suddenly, under the influence of an injection of two-tenths of a grain of strychnine, become at once very large and full, and reach a rate of 130 a minute. In support of Wood's experience, strychnine has been found of great value as a respiratory stimulant in certain lung affections, especially when complicated by circulatory or nervous depression.

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† *Medical News*, April 9, 1890.

The results of thirteen experiments on normal animals, in which the doses were sufficient to produce decided, if not fatal, effects, show conclusively that during the preconvulsant period strychnine is without decided specific effect on the respiration-rate, and that when any noticeable change occurs it is in the direction generally of depression. In Experiments 18 to 27 inclusive, the injections were given subcutaneously. Each dose was slightly less than one-half of the minimum fatal quantity. The doses in Experiments 1 to 4 at the beginning of the observations were smaller, and given intravenously. These records have been condensed, and incidental details have been omittted.

Experiments 18 to 27.

Time.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.
h. m.										
.00	20*	24*	24*	24*	20*	36*	39*	20*	34*	36*
.15	20	...	...	...	...	36	31	...	34	36
.30	18	18	24	24	20	36	25	20	34	35
.45	18	...	...	...	20	36	25	21	34	35
1.00	16	...	24*	16*	36	25	...	34	30	20
.15	18*	20*	30	24	22	36*	27	18	30	18
.30	19	...	...	20	18*	40	...	...	...	...
.45	18	20	24	...	18	36	28	19	30	...
2.00	18	20	36	24	18	36	25*	20	...	...
.30	18	20	36	28	19	34	26	...	...	...
.45	...	...	30	26	18	36	30	19	...	...
3.00	...	...	36	...	...	36	30	19	...	...
.30	...	...	...	...	...	...	...	20	...	...

* Subcutaneous injection of slightly less than one-half of the minimum fatal quantity. The respirations are calculated per minute.

These records render it apparent that the effects on the respiration-rate are not of a constant character, there sometimes being a decrease, at others a diminution, and at others practically no change. It is certainly only in exceptional cases that any decided effect, one way or the other, is noted. Indeed, these records do not, as a whole, differ from a similar set obtained from observations on animals not under the influence of any drug.

In none of these experiments were the records made during or immediately after the convulsions. At such times the respirations are almost invariably increased, especially so after the paroxysms. Such an effect cannot in any sense be considered the result of a specific action of the poison on the respiratory centres, but only such as would be expected in all cases of intense muscular and nervous excitement. It cannot, then, be said that this substance in non-convulsant doses is a direct respiratory stimulant. The beneficial influences noted on the respirations by clinicians in adynamic conditions are, doubtless, due to the same actions that give strychnine its value in cases of mental and physical depression,—that is, by increasing the tone of the nerve-centres in general.

The Temperature and Heat Processes.—All observers who have noted the effect of strychnine on bodily temperature, state that this is increased. Thus Duméril, Demarquay, and Lecointe,* Balogh,† and Högyes‡ have noted a *slight* increase, while Boeck,§ Weynich,‖ Heidenhain,¶ Falck,** and Tomassie†† have recorded a *decided* increase, sometimes reaching as much as 3° or 4° C.

As a uniform result of my experiments, I have found a more or less decided rise of temperature, which, as noted by certain others, is to some extent independent of the convulsive phenomena. But the increase following sublethal doses is generally but from .1° to .13°, unless the motor disturbances are marked.

No one has as yet attempted to determine the cause of this effect, whether it is due to an increase in heat production or a diminution of heat dissipation, or both. The three experiments which follow were made by means of a calorimeter, the method of operation of which having been detailed in the January number of the *University Medical*

* *Compt.-Rend.*, xxxii. p. 463.

† Quoted by Högyes.

‡ *Arch. f. Exper. Path. u. Phar.*, Bd. xxiv., s. 113.

§ *Ziemssen's Specialle Pathologie u. Ther.*, Bd. xv., s. 476.

‖ *Virchow's Jahresberichte*, 1869, i., s. 360.

¶ *Pflüger's Archiv f. Physiologie*, Bd. v., s. 108.

** *Virchow's Archiv*, Bd. xlix., s. 484.

†† *Centralblatt f. Med. Wiss.*, 1877, s. 932.

Magazine for 1890. The dose in each was .0002 gramme to the kilo of body-weight, injected subcutaneously. This, it will be observed, is just short of the minimum fatal quantity, and consequently more than sufficient to develop a full therapeutic action. The heat-units are in kilogramme-degrees, and the temperature in the Centigrade scale.

Experiment 28.—Dog; weight, 12.7 kilos.

	Hourly heat production.	Hourly heat dissipation.	Rectal temperature.			Mean room temperature.
			Beginning of hour.	Ending of hour.	Gain or loss (+ or —).	
First hour before strychnine	38 839	42.700	39.21°	38.83°	— 0.38°	19.2°
Second hour before strychnine	39.117	39.625	38.83°	38.78°	— 0.05°	20.2°
First hour after strychnine	41.736	39.400	38.78°	39.01°	+ 0.23°	20.7°
Second hour after strychnine	39.846	40.150	39.01°	38.98°	— 0.03°	21.0°
Third hour after strychnine	34.453	35 875	38.98°	38.84°	— 0.14°	21.0°
Fourth hour after strychnine	35.392	35.900	38.84°	38.79°	— 0.05°	21.9°

Experiment 29.—Dog; weight, 12.698 kilos.

	Hourly heat production.	Hourly heat dissipation.	Rectal temperature.			Mean room temperature.
			Beginning of hour.	Ending of hour.	Gain or loss (+ or —).	
First hour before strychnine	32.485	31.975	38.94°	38.99°	+ 0.05°	18.8°
First hour after strychnine	33.852	32.125	38.99°	38.16°	+ 0.17°	19.6°
Second hour after strychnine	29.042	32.800	39.16°	38.79°	— 0.37°	21 1°
Third hour after strychnine	29.625	29.625	38.79°	38.79°	— 0.00°	22.0°
Fourth hour after strychnine	29.922	28.500	38.79°	38.93°	+ 0.14°	22.6°

Experiment 30.—Dog; weight, 11.791 kilos.

	Hourly heat production.	Hourly heat dissipation.	Rectal temperature.			Mean room temperature.
			Beginning of hour.	Ending of hour.	Gain or loss (+ or —).	
First hour before strychnine	36.011	37.709	39.80°	39.62°	— 0.18°	19.4°
First hour after strychnine	40.838	38.575	39.62°	39.86°	+ 0.24°	20.5°
Second hour after strychnine	36.366	39.950	39 86°	38.48°	— 0.38°	20.7°

The records of these experiments do not differ materially from those of normal animals, save in the constant increase in bodily temperature during the first hour after giving the strychnine, and the attending increase of heat production. The amount of the rise of temperature, of course, simply represents the difference between the beginning and ending of the hour, and affords us no knowledge of the *extent* of the rise during that period.

The mean hourly heat production for the two hours before giving the drug in Experiment 28 was 38.978 kilogramme-degrees, and for the first hour after, 41.736 units, or a gain of 2.758. In Experiment 29 the increase was 1.367 units, and in Experiment 30 the increase was 4.827 units. Heat dissipation was diminished in Experiment 28, but increased in Experiments 29 and 30. The increase in heat production is a constant factor, and is favorable for an increase in temperature; but the increase in heat dissipation is not constant, and is antagonistic to a rise of temperature. It would, therefore, seem evident that the primary action was on the process of heat production, and that the effect on heat dissipation was of a sympathetic character, representing an effort of the system to get rid of the surplus caloric.

A SUCCESSFUL CASE OF CHOLECYSTOTOMY FOR THE REMOVAL OF GALL-STONES OBSTRUCTING THE CYSTIC DUCT.

By William Easterly Ashton, M.D.*

THE patient, Mrs. M. J. W., was sent to me on November 17, 1891, by her physician, Dr. Robert G. Barckley, of Honesdale, Pa., with the following history: She was 36 years of age, and the mother of eight chil-

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dren. Her health had always been good up to three years ago, when she was seized with an attack of biliary colic, lasting for three hours. Subsequently she had a number of these attacks, with an interval generally between them of from two to three months. Lately, however, the interval has been only three weeks. The attacks were characterized by intense pain in the hypochondriac and epigastric regions, associated with persistent vomiting. In May, 1891, the patient passed seven gall-stones. The stones were mulberry-shaped and about one-sixteenth of an inch in diameter.

When I first saw the patient her general condition was fair, and there was no indication of jaundice present. The hepatic region was tender to the touch, but there was no enlargement either of the liver or of the gall-bladder demonstrable.

Operation.—Cholecystotomy was performed at the Polyclinic Hospital on November 19, 1891, Dr. Barckley, of Honesdale, and Dr. John H. Gibbon, senior resident of the hospital, assisting at the operation. The abdominal cavity was opened by a vertical incision, beginning just below the tip of the cartilage of the ninth rib and extending downward for a distance of three inches. As soon as the peritoneal cavity had been opened, the gall-bladder came into view. It was somewhat distended, and its walls greatly thickened, due probably to a subacute cellulitis of the external coats. At first no stone could be felt through the bladder-wall, but a more careful search revealed the presence of a small, hard, round mass in the region of the commencement of the cystic duct. After packing gauze-pads beneath and around the gall-bladder, an incision was made through the fundus. Upon introducing the index-finger through this opening, a stone was felt, obstructing the entrance to the cystic duct. As it was impossible to remove the calculus with the finger, a spoon-scoop was used to dislodge it, when a second stone was discovered immediately below the first. This was then removed with the spoon-scoop, assisted by external pressure with the fingers. As a careful examination failed to show the presence of a stone in the common duct, the operation was completed by stitching the opening into the bladder to the abdominal incision and inserting a rubber drainage-tube. Irrigation or drainage of the peritoneal cavity was not employed.

After-History.—The patient made a rapid recovery, and she was discharged from the hospital on December 15, 1891. The operation, which was completed in thirty minutes, was not followed by shock. The pulse immediately after the section was 70 per minute, and the highest number of beats reached during convalescence was only 90. Up to the sixth day the temperature varied from 98.4° to 100.4°, when it became normal, and remained so without any subsequent rise. The administration of calomel was begun twenty-four hours after the operation, and was followed next morning by a stimulating rectal injection. No movement of the bowel occurred, however, until several doses—five grains each of ox-gall—had been given. The rubber tube was removed from the bladder on the ninth day, and in it was found a small gall-stone. At the time the patient left the hospital the biliary fistula had not closed. A recent report from the patient (April 10, 1892) stated that the fistula still remained, but that there had been no return of the biliary colic, and that her general condition was good.

Remarks.—The abdominal incision in this case was made directly over the position of the gall-bladder, taking the tip of the cartilage of the ninth rib as the landmark. This is probably the best situation for the opening through the belly-wall, except in those cases in which the gall-bladder is distended, and forms a distinct tumor, when the incision should be made directly over its most prominent portion.

The method of opening the gall-bladder is of importance, and depends upon whether it is greatly distended or not. In the former case a small trocar should be employed, and the bile carefully drawn off. If, however, the distention is not great, the best plan is to grasp the fundus of the gall-bladder between the thumb and index-finger, and make an incision between them directly into the organ with the point of a knife. This is the method which is employed in opening the intestine in making an anastomosis, and it has the great advantage of not injuring the walls of the gall-bladder, as would be the case if a forceps is employed to raise and steady the line of incision. Before opening the bladder, care should be taken to prevent the bile from escaping into the peritoneal cavity. For this purpose nothing is better than gauze-pads placed beneath and around the seat of operation. By this means the peritoneum will be thoroughly protected, and any overflow of bile into the abdominal cavity prevented. As an additional precaution against the escape of bile into the cavity of the ab-

domen, the fundus of the gall-bladder should be drawn over the edge of the parietal incision prior to making the opening, so that when the bladder is opened the biliary secretions will flow over the abdominal wall and away from the seat of operation.

The long continuance of the biliary fistula in this patient indicates an obstruction at some part of the common duct, and therefore any attempt to close the opening by freshening its edges would result in failure. Should the fistula continue to remain open, and the patient returns to have it closed, I shall operate in the following manner: 1. Open the abdominal cavity just below the fistula. 2. Make a communication between the upper portion of the jejunum and the gall-bladder, using solid rubber rings, threaded with catgut instead of silk, to hold the opposing surfaces together. The ring, which is placed in the gall-bladder, should have a long silk thread attached to each segment, and brought out through the fistula. At the end of a week or ten days, when the ring in the bowel has become separated, traction is made upon the threads, and the ring in the gall-bladder is brought up to the fistulous opening and removed. 3. Freshen the edges of the biliary fistula, and bring them together with sutures, and thus close the opening. Were a similar case of cholecystotomy to present itself,—that is, one in which the gall-bladder was not too contracted, or its walls perforated from ulceration, or its position abnormal,—I would be inclined to do at once an entero-cholecystotomy, instead of completing the operation by stitching the fundus of the bladder to the abdominal incision. This would do away with the great annoyance of a biliary fistula, and would add, I believe, but little to the danger of the operation.

A point of some practical interest in the after-history of this case was the prompt action of the ox-gall in removing the constipation which followed the operation.

222 South Eighth Street.

NOTES ON THE TREATMENT OF DIPHTHERIA BY HYDROGEN PEROXIDE.

By F. H. Bloodworth, M.D., Philadelphia, Pa.

THE object of this paper is to give a concise account of several cases of diphtheria which have been treated by hydrogen peroxide, and to set forth the various reasons, both practical and theoretical, why this agent is a valuable one when applied to the treatment of diphtheria.

Hydrogen peroxide acts very energetically upon dead and decaying animal tissue, yielding up its oxygen and deodorizing the decaying tissue. Likewise does it act upon all purulent discharges, the disengaged oxygen forming a foaming lather, as can be seen after it has been applied to the diphtheritic membrane.

A great many substances have been used for the purpose of dissolving the membrane of diphtheria. Hydrogen peroxide accomplishes this purpose very readily, and at the same time it has an inhibiting action upon the germ, and purifies the parts affected. Many of the other agents which have been used for the purpose of softening the membrane lack the power of destroying the germ; herein lies the virtue of hydrogen peroxide, for it not only dissolves the membrane, but it is antiseptic.

Tannin has been used as an application to the diphtheritic membrane, but it hardens the membrane, and is not, therefore, a useful drug. The hardening of the membrane prevents the subsequent application of other remedies; a thick crust is formed, and the drug which is afterwards applied cannot reach the seat of the morbid process. Hydrogen peroxide softens and dissolves the membrane, and it does not preclude the simultaneous use of other drugs. For this reason it is more valuable than other agents.

Hydrogen peroxide has other advantages over the various drugs which have been used as topical applications to the membrane of diphtheria,—viz., it causes no irritation whatever; it is colorless, odorless, tasteless; it causes no pain, and it does not interfere with digestion.

There are two theories which have been advanced in regard to the origin of diphtheria,—one which supposes the morbific element to be a gas, and the other looks upon a microbe as the cause of the disease. The microbe is now very generally accepted as the exciting cause, and the theory that a gas is the exciting cause is looked upon as a matter of "ancient history." That the foul gas arising from bad drainage bears an important relation to the production of the disease there is no doubt, but it is a predisposing cause, and not the specific element. These gases depress the mucous membrane, and render it a suitable nidus for the development and growth of the germ, which is the exciting cause. However, concerning hy-

drogen peroxide, it matters little which of these theories you accept, for it is indicated in either case. It will alter, purify, and disinfect the gas of the one, and destroy the microbe of the other.

There are several methods employed in the application of hydrogen peroxide, but any means which the ingenuity of the physician can devise will answer the purpose. It can be applied with a probang or swab, but the spray and gargle are probably the best. Inhalations and hypodermic injections have been resorted to, but without any benefit, because the blood cannot take up more oxygen than is present in the atmospheric air, as has been clearly shown by physiological investigations. Hydrogen peroxide has been given internally for the purpose of acting upon the blood, five to twenty drops of a ten per cent. solution being used. It does not interfere with the action of digestive ferments, such as pepsin, and it does not, therefore, interfere with the digestive process.

The drug should be used early in the course of the disease, in order to prevent thickening of the membrane, for when the membrane becomes thickened its resisting power is increased. Another reason why it should be used early is, that it prevents the membrane from spreading downward into the glottis and upward into the nares. The spreading of the membrane downward into the larynx is a very serious consequence, because it is very inaccessible in this location.

It is important that we should here consider the frequency with which hydrogen peroxide should be used. The drug should be applied every hour, and, better still, every half-hour, for the germs are reproduced very rapidly,—every twenty minutes, it is said. The bacilli of diphtheria are a form of the schizomycetes, and they multiply by fission,—*i.e.*, one divides into two, two into four, four into eight, etc.,—and in a very short time a large colony of germs is formed. Therefore, it is necessary to use the drug frequently to prevent the formation of new colonies, which would be a product of, possibly, a single germ which was left undestroyed.

Diphtheria has been treated by hydrogen peroxide alone, and good results have been reported, but it would hardly be wise to depend upon local treatment, for diphtheria soon becomes a constitutional disease, characterized by local manifestations, and the poison is circulating in the system. It may seem that a discussion here of the use of other drugs is rather foreign to this paper, as the paper is intended to show that hydrogen peroxide is indispensable in the treatment of diphtheria, but hydrogen peroxide will not prevent the paralyses which occur as sequelæ, which are as dangerous as the disease itself. Tonics must be given freely during the disease, whiskey, iron, and quinine being the most efficient, and strychnine should be used in convalescence. The use of hydrogen peroxide is entirely local as a disinfectant, deodorizer, and antiseptic, and it acts as a solvent to the membrane.

Case I.—A. F., aged 20. This case was seen very early, at the time of the onset, and from the beginning hydrogen peroxide was freely and frequently used, both as a gargle and a spray. The membrane did not spread, bled very little on picking, and was discharged in large lumps in the saliva without a trace of blood. The patient had no difficulty in swallowing at any time.

Convalescence was rapid, which is contrary to the general rule, and the patient, without the knowledge of the physician, left her bed, walked to the railroad station (a distance of one mile), and died suddenly of cardiac failure. The moral of this case is, that absolute rest is necessary, although the local symptoms were so much modified by the use of hydrogen peroxide.

There is no doubt concerning the diagnosis of this case. The characteristic membrane on the tonsils and pharynx, the sudden onset of the disease, and the resulting cardiac failure make it clear.

Case II.—This case was not seen until the membrane had formed thickly on the tonsils and uvula and pharynx, but hydrogen peroxide acted as a speedy solvent to the membrane, and prevented it from further spreading. Tonics—whiskey, iron, and quinine—were freely given in this case, and all of the symptoms were very much modified. No paralysis occurred, and the convalescence was not slow. This case was reported to me by Dr. R. C. Norris.

There are on record many cases which are similar to the two cases which are reported herein, and good results have been reported where hydrogen peroxide was freely used from the beginning, conjoined with the administration of tonics. The *Montreal Medical Journal*, some years ago, detailed the treatment of twenty-two cases by hydrogen peroxide, which were similar to the above, and out of the twenty-two cases only one was fatal, and in this case tonics were not used.

Of course, such good results as these are not always to be met with, but there is no doubt but that with the faithful use of hydrogen peroxide, with the free use of tonics and the enjoinment of absolute rest, we have a treatment for diphtheria which has shown itself to be useful and efficient. If we can rely upon statistics, the course of diphtheria has been greatly modified by this plan of treatment.

THE EFFECT OF FLUIDS ON THE STRENGTH OF CATGUT.

By D. Braden Kyle, M.D.*

In view of the different methods employed by surgeons in using catgut ligatures, I have thought it might be of some interest to test the strength of catgut after immersion in water and alcoholic solutions.

Two bottles of the prepared gut were selected. In one the gut was preserved in sublimated alcohol and in the other in juniper oil. Each bottle contained three sizes of the gut, No. 1 being the smallest, No. 2 medium, and No. 3 the largest size. The length of time of immersion in each case in the different solutions varied from twenty to forty minutes, or the time generally consumed in ordinary operations. The length of gut was in each case eight inches,—two inches for fastening and six inches for traction. The number of pounds required to overcome the resistance offered by the catgut was indicated by a graduated scale, care being taken to make traction in the direct line with the scale. The traction was a steady pull, the length of time before breaking being indicated by means of a stop-watch. No doubt some variation in the textile strength of the gut was due to inequality in the size of the gut used. In fact, this was proved by several comparative tests.

The experiments showed that all aqueous solutions incline to greatly diminish the strength of gut, and that the longer the immersion the greater the diminution in strength. The result from immersion in boiled water showed the greatest diminution. In pure alcohol an increase in strength was observed in direct ratio with the time of exposure. Alcohol and carbolic acid solution had very little effect. After twenty to forty minutes the strength was somewhat lessened. It was found that the catgut taken from the juniper oil, when subjected to the different solutions, showed better results than did that taken from the sublimate solution. All sublimated solutions were found to lessen the strength of the catgut.

The following table shows the result of experiments:

Solutions used.	Minutes of time the catgut was exposed.	Sublimated alcohol. Amount of traction in pounds. 1	2	3	Sublimated alcohol. Time of breaking, in fractions of a minute. 1	2	3	Juniper oil. Amount of traction in pounds. 1	2	3	Juniper oil. Time of breaking, in fraction of a minute. 1	2	3
Size of catgut used	...	1	2	3	1	2	3	1	2	3	1	2	3
Prepared catgut	...	3½	8½	16	¼	½	⅝	3½	12	21½	⅛	¼	⅜
Pure alcohol	20	4¾	6⅝	17	¼	½	⅝	4½	13½	25½	⅛	¼	⅜
	40	5	7½	17¾	¼	½	⅝	5	14	26	⅛	¼	1 m.
Alcohol and carbolic (1 to 40) acid, equal parts	20	4½	8¾	19	⅛	¼	⅝	3½	12½	21	⅛	¼	⅜
	40	5¾	6½	14	¼	⅜	½	2	11½	20	⅛	¼	⅜
Corrosive sublimate and alcohol, equal parts	20	...	...	...	...	...	...	2¾	9½	16	⅛	¼	⅜
	40	...	...	...	...	...	...	3¾	8	14½	⅛	¼	⅜
Corrosive sublimate (1 to 1000), aq. sol.	20	...	...	...	...	...	...	2½	8½	12½	⅛	¼	⅜
	40	...	...	...	...	...	...	1⅞	7½	11	⅛	¼	⅜
Boiled water	20	2	6½	13	⅛	¼	⅜	2½	6½	13	⅛	¼	⅜
	40	2⅓	5⅝	11¾	⅛	⅛	¼	2	6	12	⅛	¼	⅜

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*ON THE VALUE OF THE INHALATIONS OF CHLORINE GAS, AND THE USE HYPODERMICALLY OF IODINE AND CHLORIDE OF GOLD AND SODIUM IN THE TREATMENT OF PULMONARY CONSUMPTION.**

By Heneage Gibbes, M.D.,† and E. L. Shurly, M.D.‡

(Concluded from page 171.)

W. C. McL., male; aged 19; Canadian; clerk; good family history; habits good, excepting use of tobacco; never exposed to phthisis; hygienic surroundings always good;

* Abstract of the clinical histories of thirty-seven cases (of a series of one hundred), with a further report on the twenty-seven cases formerly published in the Therapeutic Gazette.

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never had hæmoptysis; generally healthy until last November, when he took cold, and has coughed ever since; last January became aware of fever, chills, sweating, and progressive emaciation; appetite has been quite good all along; no diarrhœa.

Admitted February 21, 1891; sallow; thin; considerable cough and expectoration (grayish); pulse, 90; temperature, 99°; respiration, 26 (10 A.M.); tubercle bacilli present in great number in sputum; voice good; no odynphagia; no nasal catarrh apparently.

Physical Signs.—Dulness on percussion; cavernous respiration and gurgling râles over right apex (cavity); bronchial and cog-wheel respiration all over this side; creaking, loud respiration over left apex; after a time there was enlargement of the excavation and increased softening of lung.

Treatment.—Hypodermic injections of gold (one-fifth grain) every night; changed to iodine (one-sixth grain) on the 15th, and continued; quinine and camphor pill three times a day; acetanilide and codeine at night; Mosquera's food and bone-meal; and inhalations of chlorine twice daily.

Temperature ranged between 98° (A.M.) and 102° (P.M.), excepting for two or three days every two weeks. The iodine was increased to one and one-half grains at each injection, which subsequently caused diarrhœa, sweating, and diffused mucous râles, when the dose was lessened; expectoration after this diminished, also number of tubercle bacilli. During April and May the temperature gradually ranged lower.

Patient died in July. The treatment was not kept up after leaving the hospital.

H. A. C., aged 47; American; physician; lost one sister from phthisis; has worked hard in country practice; habits good, except chewing of tobacco; good surroundings; no hæmoptysis; has had cough for three years; much worse in winter; has had fever and nocturnal diaphoresis for last few months; lost fifty pounds in weight; has been expectorating about three ounces of "muco-pus" daily.

Admitted March 17, 1891; spare; considerable debility; bowels regular; not much appetite; pulse, 110, weak; temperature, 100.5°; respiration, 26; tubercle bacilli in sputum.

Physical Signs.—Pectoriloquy and cavernous respiration in right axillary region; exaggerated vocal resonance and broncho-vesicular respiration in patches on right side of chest, and some on left side.

April 20.—There were signs of a cavity, and creaking respiration about the site of excavation; broncho-vesicular respiration elsewhere.

Treatment.—Hypodermic injections of iodine, one-twelfth grain, at first gradually increasing to one-half grain; then hypodermic injections of gold, from one-twentieth to one-third grain; pneumatic cabinet, occasionally, from March 25.

Inhalations of chlorine twice daily, excepting during the period of taking the cabinet, which was once or twice a week thereafter.

Temperature gradually lowered after the first ten days, excepting on April 12 and 27, when for twenty-four hours respectively it remained at 102° to 103° (P.M.), with extra cough. He had Mosquera's food and malt-ale (Parke, Davis & Co.'s) three or four times a day. He grew stronger, and expectoration diminished, so that it was about two ounces daily for the last two weeks of his stay in hospital. Temperature was 99.6° (evening) and 98.5° (morning).

April 24.—Tubercle bacilli were present.

May 1.—There were but few present.

Heard from him in July that he was still taking the treatment and doing well. He intended going South in the autumn. Have not heard of him since.

D. S., male; aged 23; native of Ireland; butcher; married; habits tolerably good; lost one brother and one sister from phthisis; father and mother alive. Five years ago enlarged cervical glands were removed; has been well ever since, until last autumn, when he began to cough, lose strength and appetite; suffers from elevation of temperature at evening and night-sweating. These symptoms have continued on and off since. No hæmoptysis, nor very much expectoration.

Admitted April 17; weak; has much *dry* cough; anorexia; irregular bowels; tongue heavily-coated, white; hoarseness and some odynphagia; pulse, 108; temperature, 99.4°; respiration, 24; tubercle bacilli in sputum.

Physical Signs.—Bronchial respiration; bronchophony; increased fremitus, with dulness on percussion over upper left; prolonged and jerky expiration over lower left lung; high-pitched respiration on opposite side; no râles anywhere.

May 1.—Physical signs changed to broncho-vesicular respiration and creaking; pharynx and larynx red and irritable; some swelling of arytenoids; no abrasion.

Treatment.—Hypodermic injections of iodine, one-sixth grain; chlorine inhalations

twice daily. On the 23d hypodermic injections of iodine stopped, and gold given, on account of diarrhœa, metallic taste, and coryza; inhalations were continued.

Temperature increased to 102° evenings until the 13th, when it began to lower, and after that never rose, with two exceptions, above 99.2° at evening. Expectoration increased until about the 27th. He was still hoarse when he left the hospital.

He resumed work in June, stopping treatment after that; heard through a friend of his, in August, that he was "well!"

A. H. W., male; aged 48; American; merchant; married; family history good; generally well until January, 1891, when he began coughing and "feeling badly;" has grown worse lately; some fever, chills, and expectoration; always looked well; there is not *much* hoarseness; never had hæmoptysis.

Admitted March 19; looks well; has considerable cough and expectoration; feels very weak; pulse, 86; temperature, 100°; respiration, 22; bowels constipated; no appetite; sleepless; tubercle bacilli present in sputum.

Physical Signs.—Increased fremitus over upper right; broncho-vesicular respiration on both sides; sibilant and mucous râles over interscapular region; larynx hyperæmic.

Treatment.—Hypodermic injections of iodine (one-sixth grain) every day; tonic mixture (salicin); and inhalations of eucalyptus oil, with petrolina (one to fourteen drachms).

He rapidly improved, and on March 29 (the day of his discharge) there was very little expectoration, and no tubercle bacilli present. He has steadily improved since, and is practically well now (February 5). This was undoubtedly a case of bronchial catarrh, although tubercle bacilli were present.

Mrs. J. G. S., aged 37; Canadian; married; habits good; has worked hard; family history good; no exposure; lived in damp house for some years where land drainage was poor; has had cough three years; occasional fever; been worse the last two years, and emaciating steadily the last six months; has had chills, fever, and night-sweating; has lost thirty-four pounds; has been expectorating about four ounces daily; hoarse; pain in chest; never had hæmoptysis.

Admitted March 19; emaciated; hoarse; naso-pharyngeal catarrh; feels weak, but able to "be up" through the day; poor appetite; constipation; tongue smooth; pulse small, 90; temperature, 99.8°; respiration, 24; no tubercle bacilli in sputum.

Physical Signs.—Bronchial respiration; bronchophony, and large râles over upper right front and back; emphysematous patches behind, on both sides; dulness on percussion over upper right front; larynx red, and ary-epiglottic folds slightly swollen; hypertrophy of nasal mucous membrane, but very little stenosis.

Treatment.—Hypodermic injections of iodine (one-third grain) daily, and house tonic three times a day; beef-ball, eggnog, etc.; inhalations of chlorine once, then twice, or thrice daily, each *séance* lasting twenty minutes.

Grew stronger rapidly; temperature fell, so that on 22d to 24th it ranged at 99°. On account of the sickness of a child at home, she left the hospital on the 25th. Treatment was continued at her home, excepting the inhalations.

When last heard from, in August, she was very much better; considered by her physician to be well.

Mrs. E. F., aged 46; Canadian; lived in United States ten years; widow; dress-maker; habits good; always worked hard; lost maternal uncle of phthisis, also one sister; was fleshy until the age of twenty-three years; has had cough on and off for eleven years; had an abortion ten years ago; had hæmoptysis shortly after that, and once since (three years ago); pain in chest and "asthmatic" symptoms ever since; been worse for last three months in every particular; had typhoid fever in 1889; no menstruation for long time.

Admitted September 15, 1890; very thin; unable to "be up" much; respiration oppressive and 40; temperature, 100.5°; pulse, 110; considerable expectoration (grayish); tubercle bacilli present in sputum.

Physical Signs.—Wheezy, sibilant râles over upper part of chest.

October 2.—Physical exploration of chest showed consolidation at upper left; also signs of an *old* effusion at lower left back.

Treatment.—Hypodermic injections of iodine, one-sixth grain, and then gold, grindel., rob., morph., and tr. lobelia, to combat asthmatic paroxysms. The pneumatic cabinet during last two months of her stay in hospital daily.

This case would be regarded as one of asthma, were no tubercle bacilli and signs of consolidation present. The patient improved slowly up to time of leaving hospital, excepting for slight exacerbations oc-

casionally. The bacilli disappeared from sputum about December 1.

She has been earning her living since leaving the hospital, and feeling most of the time "tolerably well," excepting when she took cold in November, and was quite ill for a couple of weeks. Sputum examined in December showed a few tubercle bacilli and much mucin.

January 20.—There were no tubercle bacilli present, and she said she felt quite strong.

J. N. D., male; aged 23; Michigan; clerk; habits good; single; lost two sisters and two maternal aunts with phthisis; paternal family history good; was in house considerably with one sister, who died of phthisis; cough and fever began last November; never had hæmoptysis; no laryngeal symptoms.

Admitted March 2, 1891; very weak; pale; has diarrhœa; much expectoration; respiration, 30; pulse, 120; temperature, 103.2°; tubercle bacilli in sputum.

Physical Signs.—Upper right lung, broncho-vesicular respiration and exaggerated resonance; upper left, dulness on percussion; bronchial respiration; mucous and gurgling râles down to fifth rib.

Treatment.—Hypodermic injections of iodine and gold daily; bisulph. quinine, as required; also inhalation of chlorine daily; bone-meal; pepsine, strych., and iron from time to time.

Continued the injections of iodine and gold for a while, but discontinued the inhalations after March 11. He grew weaker, temperature ranging from 98° to 103.5°, excepting from March 12 to April 1. He had more or less diarrhœa all the time.

Died April 25, 1891.

A. H. W., male; aged 48; American; merchant; married; great smoker; family history good; never exposed to a case of phthisis; always good hygienic surroundings; never had hæmoptysis, but has had chills, followed by fever and night-sweats, occasionally of late.

Admitted March 1, 1891. Says he was generally well until two or three months ago, when he "took cold," and has coughed considerably since; more, however, for the last six weeks with increased expectoration. He now feels very weak; has lost some in weight; appetite has been tolerably good; thinks the beginning of this cough was from *cold;* good color of face; respiration, 22; pulse, 90 (small); temperature, 99° (A.M.); tubercle bacilli present in sputum; tongue coated; skin moist; larynx hyperæmic.

Physical Signs.—Broncho-vesicular, jerky respiration; increased fremitus, and increased vocal resonance at upper right front, and duller percussion-note; sibilant and sonorous râles behind over interscapular region. Temperature ranged between 98° and 100.5° up to the 20th; then subsided to nearly normal, where it remained, excepting on the evenings of the 24th, 26th, and 27th, when it rose to 100°; no tubercle bacilli were found in sputum on the 20th.

Examination of chest on the 24th showed disappearance of râles, and evidence of increased density, but there was some creaking.

Treatment consisted of cinchonidine and hydrastine (in capsules) four times a day for first ten days. Hypodermic injections of iodine (one-twelfth, increasing to one-half grain) every day; and inhalations of oil of eucalyptus, as larynx was too irritable for the chlorine.

He left the hospital March 29, feeling well, with very little cough. February 10, 1892, reported as well.

A. B., female; aged 23; American; teacher; single; good habits; lost one uncle and three cousins with phthisis; "*nursed*" one cousin for two months; has always worked hard; lost flesh rapidly lately; never had hæmoptysis; has coughed since September, 1890, increasing lately; is growing weaker; has night-sweating, etc.

Admitted March 2, 1891; looks very pale and thin; is cheerful; coughs and expectorates, *mostly* mornings; has chills and fever; no menstruation; anorexia; bowels not loose; respiration, 30; pulse, 114 (small); temperature, 100°; no tubercle bacilli in sputum.

Physical Signs.—Prolonged jerky expiration, with loss of vesicular quality; quite general over both upper fronts; moist râles on forced inspiration over upper right, also dulness on percussion.

Treatment.—Hypodermic injections of gold (one-twentieth grain, and increased to one-third grain); bone-meal and malted milk, with spts. frumenti, three times a day; malt-ale substituted for whiskey after a week; chlorine inhalations once a day for twenty minutes; codeine at night, when necessary.

Temperature continued to rise daily; patient rapidly grew worse; lungs rapidly softened *all over;* there was very little expectoration while in the hospital.

She left the hospital March 23. We

learned that she died about the 1st of May.

There were no tubercle bacilli found at any time, and no *gradual* softening of pulmonary tissue. Both lungs seemed to soften rapidly.

N. D., aged 18; Canadian; single; no occupation; female; mother and sister died of phthisis; patient was with them very much; was healthy until sixteen years old, when she began to cough; cough has continued ever since; hæmoptysis two months ago, followed by chills and fever every day; no menstruation for last three months; has been expectorating a considerable amount since last May; no diarrhœa; night-sweats nearly every night during the last three months; pain and tenderness of chest; emaciated; progressive weakness.

Admitted March 1; anæmic; weak; tongue clean and red; must lie down most of the time; very much cough; respiration, 34; pulse, 98 (small); temperature, 101° (A.M.); tubercle bacilli in abundance in sputum; skin moist; bowels loose.

Physical Signs.—At left infraclavicular region cavernous respiration and gurgling râles; bronchophony, bronchial respiration, and dulness on percussion over upper left front; mucous râles over both lungs; evidently excavation is taking place all through upper left lung; no laryngeal symptoms; larynx pale.

Treatment.—Hypodermic injections of iodine (one-twelfth grain, increased to one-half grain) for two weeks; chlorine inhalations twice daily, ten to twenty minutes; carbonate of iron and bone-meal, with extract of malt, three times a day; potassium bromide at night; turpentine to chest. Hypodermic injections of gold continued (one-fifth grain) after March 14. Temperature grew higher (99° to 102.3°) until April 1, when it regularly lowered, until the evening temperature became about 99.5°; expectoration diminished very much; at this time there were large mucous râles to be heard, although the cavity in left was evidently drying. She had two movements of bowels daily. Tubercle bacilli still present in sputum when she left the hospital, April 9.

Heard from in September. She was living, and, although weak, was "able to be around all day." She had continued to receive the hypodermic injections of iodine and gold alternately.

J. W. D., male; aged 40; American; merchant; married; father died of phthisis; patient never exposed, however, to the disease; smokes heavily; good hygienic surroundings always; generally well. Last January "took cold," and has coughed ever since; has lost flesh; never had hæmoptysis; gradual increase of expectoration; chills and fever occasionally; poor appetite.

Admitted March 17; not very thin, but pale; expectorates about one ounce daily; no indigestion nor diarrhœa; night-sweating occasionally; "breath short,—respiration, 24; pulse, 100; temperature, 99.5°; not hoarse; no odynphagia; some extra discharge from nose; a few tubercle bacilli present in the sputum.

Physical Signs.—Abnormal transmission of heart sounds; prolonged, jerky expiration; dulness on percussion, and diminished fremitus over upper left front; right lung evidently emphysematous.

He left the hospital April 6.

Treatment.—Hypodermic injections of gold (one-twentieth grain, increased to one-third) for one week; chlorine inhalations once a day, twenty-five minutes. The chlorine inhalations were stopped on the 20th and the cabinet substituted. Hypodermic injections of iodine (one-sixth grain to one-half) given after the 25th. House tonic three times a day, and concentrated nourishment. Temperature rose until the 22d, then gradually decreased, and remained normal during the last week of his stay in the hospital. At that time the physical signs showed returning vesicular quality and dry râles only. He was very much improved in every way; tubercle bacilli had disappeared; expectoration diminished; very little cough. He continued the hypodermic injections until September 20th at his home.

Not heard from since October, when he was very much better and improving.

E. E. C., male; aged 29; Michigan; photographer; married; family history good; damp surroundings; habits good; cough began September, 1890; chills and fever began December, 1890; since then has lost fifty pounds in weight; has had diarrhœa more or less lately; expectorates about two ounces daily, which looks like muco-pus; chills, fever, and night-sweats; never had hæmoptysis; has had discharge from right ear for last six months.

Admitted March 9; pale; very thin; weak; fair appetite; bowels loose; "nervous;" pulse, 120 (small); temperature, 103°; respiration, 32; tubercle bacilli present in sputum.

Physical Signs.—Bronchial respiration, bronchophony, cavernous respiration and gurgling

râles over both upper fronts,—a large cavity in upper left lung.

Treatment.—Chlorine inhalations twice daily, for twenty to thirty minutes. Hypodermic injections of iodine (one-half grain) daily, for two days; then reduced; diarrhœa grew worse; then gave iodine (one-twelfth grain) daily, for three days; then gold (one-tenth grain) daily. Chlorine inhalations were stopped after the 5th, on account of looseness of bowels, and oil of eucalyptus given instead; spray hammamilis and sol. pot. chlor. through nose; spts. rectif. and tannin, and afterwards nit. silver and opium (in pill) three times daily to control bowels.

He did *not* improve; diarrhœa was persistent, cough incessant, and expectoration profuse; nocturnal diaphoresis more regular; temperature never "went down," excepting on days when the bowels were very loose. It ranged generally between 97.5° (A.M.) and 104° (P.M.).

We learned that he died May 1, 1891.

W. O. L., male; aged 34; Norwegian; merchant; married; family history good; hygienic surroundings good; habits good; never had hæmoptysis; generally well; although has had some cough and hawking for fifteen years, which has grown worse for last two years; has been getting "short of breath," and suffering with fever on and off; weakness, poor appetite, and considerable expectoration lately; some hoarseness; no odynphagia.

Admitted March 2; looks well; not fat; short of breath; respiration, 26; pulse, 100; temperature, 100.2° (A.M.).

Physical Signs.—Dulness on percussion over upper left front to third rib; also exaggerated resonance, loss of vesicular quality, prolonged expiration, and abnormal transmission of heart-sounds; no râles. There are also patches of exaggerated resonance over the right front and left back; tubercle bacilli present in goodly quantity.

Treatment.—Hypodermic injections of iodine (one-sixth grain) twice daily, and Horlick's food, Parke, Davis & Co.'s maltale three or four times a day; inhalations of eucalyptol (in face-shield inhaler) for two weeks; then chlorine inhalations once or twice daily. Evening temperature increased up to the 8th, averaging 102°, but gradually subsided to 99.5° and 100°; after that appetite improved. The cabinet treatment was substituted for chlorine (twice a day) from the 22d. The dose of iodine was reduced to one-twelfth grain daily after March 15. The cough and expectoration lessened; tubercle bacilli disappeared, as also the physical signs of consolidation, the evening temperature remaining at 99°.

He left the hospital March 30 very much improved. Received a letter in November stating that patient "felt very well;" he had practically no cough; was still short of breath; however, he intended to go to California for the winter; had been taking one injection of iodine (one-sixth grain) every ten days.

We have not heard from him since.

A. M., aged 40; Canadian; housewife; married; family history good; hygienic surroundings good; habits good; always worked hard; has had nine children; was well until two years and a half ago, when she had severe hæmoptysis three times during one month; she had one attack again six months ago; has coughed and expectorated freely ever since, and has had night-sweating; no menstruation for last four months; "lost her voice" six months ago.

Admitted February 4, 1891; pale and thin; seems quite weak; respiration not taken; pulse, 120; temperature, 101°; nausea and indigestion; aphonic; no odynphagia; tubercle bacilli in sputum.

Physical Signs.—Bronchial respiration, bronchophony, pectoriloquy, and large moist râles over more or less of the right side of chest; arytenoids and ventricular bands swollen and abraded; both vocal cords round, red, and rough; epiglottis not abraded.

Treatment.—Hypodermic injections of gold (one-twentieth grain) for a week; then iodine (one-twelfth grain) for a week, and so on alternately; Mosquera's food, and milk three or four times a day; codeine and acetanilide at night; quinine (three grains) three times a day. Inhalations of chlorine twice a day in inhaling-room twenty-five minutes; once in a while three times a day.

Cough very persistent; expectoration amounting to about six ounces daily.

The temperature ranged between 98.5° and 102° until the 26th. It then gradually subsided on the average until during the last three weeks. The evening temperature did not rise above 100°; voice improved remarkably; she took the chlorine well; had slight hæmoptysis on February 7. The moist râles, in great measure, gradually disappeared, giving place to *dry ones;* the swelling of larynx subsided very much, and she left the hospital March 26 improved.

We heard in October that she was still

improving, and was taking injections regularly twice a week at home.

I. H., female; aged 31; Michigan; married; family history good; hygienic surroundings good; no particular exposure; was well "until after going West" last autumn; was taken with cough and hæmoptysis quite suddenly; has had many attacks since; has had three severe attacks during the last four weeks; chills, fever, and night-sweating for the last two months; irregular and scanty menstruation; indigestion and headache.

Admitted April 9; somewhat pale and thin; is able to "be up" during most of the day; respiration, 26; pulse, 100; temperature, 98.5° (A.M.); anorexia, and vomiting after meals; very nervous; no turbercle bacilli can be found in sputum.

Physical Signs.—Dulness on percussion; bronchial respiration; bronchophony and subcrepitant râles over upper left lung.

Treatment.—Hypodermic injections of gold (one-twentieth grain) daily; then iodine (one-sixth grain) daily; chlorine inhalations twice a day. The inhalations were stopped on account of vomiting apparently following them; Mosquera's food, milk, pepsine, strychnine, and bone-meal (Parke, Davis & Co.'s), with maltale, three or four times a day.

The main trouble with the treatment of this patient seemed to be *the stomach*, which would not retain food nor digest it. She finally grew better in every way, and the physical signs showed the following improvement,—viz., the subcrepitant râles disappeared entirely, and the temperature lowered to a range of 98.5° to 99.5°. She became so restless and nervous, however, that it was thought advisable to let her go home and continue the treatment there, which she did.

At last accounts (September) she had recovered so far that she was up and about all the time; had very little cough, but was short of breath. This winter she is visiting relatives in the South.

There were no tubercle bacilli in the sputum examined in September.

R. S. D., male; aged 50; married; merchant; good habits, excepting use of tobacco; always had good hygienic surroundings; lost one sister of pneumonia and two cousins of phthisis; was never exposed to phthisis; mother had asthma; patient was generally well, excepting for slight attacks of "hay-fever" every autumn, until two years ago; then had a severe attack of "bronchitis," from which he recovered, and remained well until last autumn, when he "took a severe cold," and has coughed and expectorated ever since; has been growing weaker; never had hæmoptysis; has not lost *much* flesh; coughs considerably now, and expectorates freely a yellowish-gray sputum.

Admitted April 10, 1891; appears quite well; pulse, 90; respiration, 26; temperature, 99°; tubercle bacilli and much albumin in expectoration; voice husky; no diarrhœa nor dyspepsia; tongue coated; has been having chills lately, followed by fever and night-sweating.

Physical Signs.—Dulness on percussion; bronchial interrupted respiration; and bronchophony over upper right; high pitch and diminution of vesicular quality over other lung.

Treatment.—Hypodermic injections of iodine (one-twelfth grain to one-third) every evening; atropine and codeine at night; Mosquera's food and milk between meals, and warm milk at night; bismuth and chloranodyne occasionally for nausea; chlorine inhalation twice a day, ten to twenty minutes, from the 26th of April to May 7; pneumatic cabinet every other day, from two to four minutes; hypodermic injections of gold (one-tenth grain to one-fifth) after May 1. Patient continued to improve steadily without interruption, and on May 17 the lung had "cleared up;" strength had returned considerably; respiration was better, and temperature varied but little from normal. Examination of sputum May 16 showed a few tubercle bacilli present.

Patient went home and continued treatment; was heard from in December as just about going to California to spend the winter. He was apparently well; had been in California before.

Mrs. F. L. R., aged 33; American; married; has had two children; good hygienic surroundings; in good circumstances; never been exposed to phthisis particularly; family history good; illness began four years ago, just after parturition, with cough and slight hæmoptysis; has never been well since; has had more or less cough (hacking), and been growing weaker. Two years ago had hæmoptysis after "a cold," and has coughed ever since; last eight months has had "sore throat," chills, fever, night-sweats, and suffered progressive emaciation; has some appetite; no diarrhœa; no menstruation for the past eight months (menstruation was always irregular); soreness of throat and husky voice has been continuous.

Admitted April 28; thin, pale, and weak; pulse, 120; respiration, 22; temperature, 103° (P.M); complains of some nausea upon sitting up *too long*.

Physical Signs.—Bronchial respiration and bronchophony, and gurgling râles over upper right lung down to fourth rib; dulness on percussion and broncho-vesicular respiration (jerky) below posteriorly; also bronchial respiration and bronchophony over left apex.

Laryngeal examination shows extra secretion, paleness, and swelling of aryepiglottic folds and ventricular bands, but *no* erosion; no naso-pharyngeal catarrh; tubercle bacilli present.

Treatment.—Hypodermic injections of iodine (one-twelfth grain to one-sixth grain) every day; after May 6 gold (one-twentieth grain) every day; chlorine inhalations once daily, for twenty-five minutes, and occasionally salicin mixture three times a day; also bone-meal (Parke, Davis & Co.'s), with carbonate of iron after eating; codeine, or inhalations of ether and chloroform at night, as required. The evening temperature ran up about every other day to 103°, during her stay in the hospital, while the morning temperature was sometimes subnormal. The pulse ranged between 100 and 126 (small).

The patient was discharged May 19 no better; since which time we have not heard from her.

Miss K. W. M., aged 23; American; capsule-maker; good habits; worked hard; not very good hygienic surroundings; always poor; never exposed particularly to phthisical patients; was never very strong; family history good as far as known; began to cough about a year ago, and has continued ever since; lately has had considerable expectoration (thick); never had hæmoptysis; chills and fever of late; menstruated at long intervals only, and scanty; no menstruation for last few months; night-sweating occasionally; poor appetite; and looseness of bowels.

Admitted March 26; looks badly and thin; pulse, 112 (small); respiration, 30; temperature, 101° (A.M.); tongue red; bowels loose (two passages daily); some tenderness of abdomen; voice normal; no odynphagia; expectorates about two ounces daily, according to estimate; tubercle bacilli present in large numbers in sputum, which is very heavy and tenacious.

Physical Signs.—Percussion-note higher pitched all over left chest; dulness on percussion; bronchial respiration; bronchophony; exaggerated vocal fremitus; mucous râles and moist crackling over upper half of right chest; posteriorly, at angle of scapula, embracing a region about four by five inches; there was cavernous respiration and bubbling râles; pharynx and larynx pale, and the latter slightly œdematous.

Treatment.—Malt and salicin mixture three times a day; paregoric or Squibb's mixture three or four times a day, to control bowels; bone-meal and iron carbonate, and brandy containing three minims of creosote, three times a day; other astringents from time to time, to control bowels, as necessary. Hypodermic injections of iodine (one-twelfth grain) every day; increased after April 4 to one-sixth grain, and continued until the 13th, when one-tenth grain was given; gelsemium at night for pain in head and face; to relieve dysury, spts. ether nitr. twice daily in water for a day or two; chlorine inhalations twice daily, for fifteen minutes; this was stopped on the 3d of April because it produced nausea, but resumed on April 10, and given every other day; concentrated nourishment was administered. There was much difficulty with the bowels, which were inclined to looseness all the time. The temperature declined, by "fits and starts," every two or three days, ranging from 98.5° to 100°; then upward. The pulse continued rapid; respiration declined to 20, and 24 from April 14 to May 3. She had almost daily *pronounced* chills, followed by fever, but seemed to be gaining in strength, appetite, and assimilative powers. April 14, examination of sputum showed no tubercle bacilli present, but on the 27th the examination showed them again in small number. From May 4 to 15 the evening temperature rose to only 99.6° or 99.8°. She seemed in every way better. Physical signs showed a marked improvement of the local condition, as evidenced by dry, creaking râles instead of moist ones, etc. The expectoration had also greatly diminished.

She was discharged May 18 very much better, with good appetite; no diarrhœa; was able to walk a *good* distance. She continued treatment at her home, and in November (when heard from) was steadily improving in every way.

A *summary*, approximately based upon what was known of the course of these cases up to November and December, 1891, and January, 1892, respectively, would give the following:

Recovered (so called)	13
Improved	9
Not improved	3
Died	7
Total	32

The apparatus used by Drs. Shurley and Gibbes can be obtained from H. J. Milburn & Co. or Seeley Bros., of Detroit, Michigan.

PRESCRIPTIONS FOR ECZEMA.

Cases of acute eczema should not be treated by liquids, but by powders, according to *L'Union Médicale* of March 29, 1892. The following powder may be used where there is acute inflammation :

℞ Oxide of zinc,
Subnitrate of bismuth, aâ ʒiiss ;
Talc, ʒiss.

In the treatment of chronic eczema it is often wise to commence with ointments of zinc, such as follows :

℞ Oxide of zinc, gr. xxx ;
Vaseline, ʒvi.

Or the following may be employed if the first is not sufficiently active :

℞ Calomel, from gr. vii to ʒi ;
Oxide of zinc, gr. xv to ʒi ;
Vaseline, ʒvi. M.

In cases which are unusually rebellious, as in the case of those eczemas which are in folds of the body, the following may be employed :

℞ Yellow precipitate, gr. xv ;
Pure oil of cade, gr. xv to ʒi ;
Vaseline, ʒvi. M.

This ointment is very active, and is harmful if employed in regions where it can produce folliculitis around hair-follicles, in which case the following may be employed :

℞ Sulphur, gr. xv ;
Coca-butter, ʒi ;
Castor oil, ʒi. M.

Sig.—A small quantity of naphthol or camphor may be added to this.

In those eczemas with abundant desquamation, the following prescription is useful :

℞ Salicylic acid, gr. xv ;
Oxide of zinc, gr. xxx ;
Vaseline, gr. xxx.

When pruriginous eczema is present, the following is useful, as it protects the parts :

℞ Oxide of zinc,
Vaseline, equal parts.

It may be well to incorporate with these substances, if pruritus is present, a little oil of peppermint or carbolic acid, in the proportion of 1 to 4.

PRESCRIPTION FOR BRONCHO-PNEUMONIA.

L'Union Médicale for March 24, 1892, gives the following prescription for the treatment of broncho-pneumonia of children in the later stages :

℞ Brandy, ʒss to ʒi ;
Quinine sulphate, gr. x ;
Syrup of orange, ʒss ;
Peppermint-water, ʒii. M.

Sig.—Give 6 to 10 coffeespoonfuls of this mixture to a child each day.

DRUNKENNESS AS A VIRTUE.

Dr. George Foy sends the following letter to the *London Medical Press*, of November 18, 1891:

Sir,—As an evidence of the altered social habits of the general public, I wish to bring a curious old volume under the notice of your readers. It was printed for E. Curl, against Catherine Street, in the Strand, London, in 1723, and is marked "Price Five Shillings." The title is as follows: "Ebrietatis Encomium, or the Praise of Drunkenness; wherein is authentically and most evidently proved the NECESSITY of frequently getting DRUNK; and that the PRACTICE of getting DRUNK is most ANCIENT, PRIMITIVE, and CATHOLIC. Confirmed BY THE EXAMPLE of *Heathens*, *Turks*, *Infidels*, *Primitive Christians*, *Saints*, *Popes*, *Bishops*, *Doctors*, *Philosophers*, *Poets*, *Freemasons*, and other *Men of* LEARNING *in all Ages*. By Boniface Oinophilus, de Monte Fiascone, A.B.C."

Vinum retificans cor hominis,
Narratur et Prisci Catories,
Sæpe mero caluisse virtus.
HORAT.

The author lays down the following rules for getting drunk, to wit:

1. Not too often.
2. In good company.
3. With good wine.
4. At convenient times.
5. Force no one to drink.
6. Do not push drunkenness too far.

The volume ends with a postscript by F. Sans-Terre, dated May 1, 1723, "*From my Garret in* Bandy-legged Walk." A year made memorable by the death of "Vanessa."

The Therapeutic Gazette

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Leading Articles.

THE CONTRAINDICATIONS TO QUININE.

A FEW years ago it was said by a well-known therapeutist that there was one drug more outrageously abused than any other, and that was iron; that physicians had fallen into the careless and useless habit of prescribing iron for every case of debility which they met with, whether anæmia existed or not, or recommended its use whenever they could think of nothing better, and were not quite sure what the trouble of the patient amounted to. At the present time, a similar craze has arisen in regard to quinine, which is prescribed in extraordinary quantities by patients for themselves, by druggists over their counters, and by physicians, who do not have the excuse of ignorance which the others with less knowledge can present. The recent scourges of influenza which have swept over the country have done much to increase this quinine habit, and the decrease in the price of quinine during the last few years has aided in spreading the custom of taking it on every possible occasion. At the outset it should be remembered that quinine is a drug which has distinct limitations in its usefulness. In the first place, it is, as every one knows, our best antiperiodic in malarial disease; second, it is capable of acting as a simple bitter tonic; and, third, it possesses apparently considerable power in producing a gain in blood-corpuscles and hæmoglobin. Finally, it is found to be, by many at least, a drug which in some degree supports the system, prevents nervous wear and tear, and breaks up oncoming inflammations, as when taken to abort a beginning cold. These actions are all important, but beyond them there are few indications which quinine meets as well, or half as well, as do other drugs, and, as a bitter tonic, there are others, such as columbo, which are certainly equal to it.

The first contraindication to the use of quinine, then, is any condition in which we fail to find just reasons for its use, for quinine is *not* a drug which can be given freely at all times without harm. The other contraindications are numerous and important. Albertoni and others have proved that conditions of irritability of the cerebral cortex contraindicate its employment, and wide clinical experience shows that these experimenters were right in their conclusions, and that epilepsy is often increased in the frequency of attack and in severity by quinine. Again, we find that the best therapeutic students are unanimous in asserting that quinine when eliminated in large amounts is capable of causing irritation of the genito-urinary tract, and Stillé states that any inflammatory disease of these parts is made worse by quinine. Acute cystitis, urethritis, specific or otherwise, and, most important, acute nephritis, prevent the use of quinine in many cases. This is particularly important if, in association with the renal difficulty, there is also uræmia or a tendency to it. The studies of Roosa long ago showed that quinine was capable of causing deafness by congesting the middle ear, and it is common-stock knowledge to-day that total and permanent deafness may be brought on by full doses of quinine in persons who have already some form of middle-ear disease. The clinical picture of cerebral congestion produced by quinine in full doses is sufficiently well marked to indicate to the careful physician that quinine is contraindicated by cerebritis,

meningitis, or congestion of the brain, and experiments on the lower animals show that the drug exercises just such an effect as is seen in man, the capillaries of the meninges becoming engorged and congested under the effect of full doses of the alkaloid of cinchona. Gastritis is a very distinct contraindication to quinine. The writer believes that many cases of gastric irritability are largely due to the ingestion of quinine, particularly in the case of children. The malaise dependent upon gastro-intestinal disorder is often temporarily removed by the stimulus of quinine in moderate doses, only to return later in a more aggravated form on the withdrawal of the quinine or during its prolonged use. Finally, there are a number of patients who cannot take quinine because of idiosyncrasy. In some of these hæmaturia and epistaxis are developed. In others disagreeable eruptions assert themselves. Careful inquiry should always be made of patients before quinine is given to determine the possibility of such tendencies. Curiously enough, some persons who cannot take the sulphate of quinine, can take the hydrochlorate or hydrobromate very readily.

PERMANENT HEADACHES.

HEADACHES which last for years, and practically without remission, are not common in the ordinary sense of the term. Frequently patients, made miserable by the constant repetition of explosions of head-pain, declare that they always suffer more or less from headache, but on strict questioning it becomes apparent that there are days, or certainly portions of each day, when they are free from discomfort. Only such headaches should be classed as permanent which last for years and are never absent. They may differ in degree, the pain may vary from hour to hour, and they may be signalized by exacerbations of suffering followed by periods of comparative relief, but the actual absence of pain of some type does not occur. The intractable character of such cases, their stubborn resistance to therapeutic measures, often, it may be, leading to "therapeutic despair," justifies the term which Weir Mitchell has applied when he calls the disease "an exasperating malady." It is the object of the present note to call attention to some of the points which this observer has recorded in a lecture upon permanent headaches printed in the *International Clinics* for October, 1891.

The first principle of success in the management of a permanent headache necessarily depends upon a knowledge of its cause, and while a variety of them may be traced to well-known influences, a certain number remain unexplained. Curiously enough, as Dr. Mitchell points out, a constant headache may be composed of one or more varieties, or, as he expresses it, "a man may be subject to two, or even three, kinds of headache." Thus, proper treatment may dispel a frontal pain, but be ineffectual against an occipital pain; or, again, a frontal and occipital pain may be due to the same cause, may be properly treated and entirely cured, but there is a residual parietal pain against which therapeutic measures are unavailing.

Much has been written in regard to the relation of ocular defects to headaches since 1874, when Dr. Mitchell first directed attention to the cerebral results of eye-strain; hence it is important to consider for a moment his present views in regard to the relation of eye-strain to the production of permanent headache in the sense in which it has been defined in this article. "I have rarely seen very constant headaches due to eye-strain," writes Dr. Mitchell. "The intracranial distress from eye-strain comes and goes, and if the trouble is typically hemicranial, it is not apt to be caused, even if it may be intensified, by defective eyes. I have sometimes, however, had a clinical suspicion that it is possible for imperfect eyes long used to excess without correction, to give rise to a condition of occipital headache, which may be called permanent in the sense that it continues for years to survive the cause." This suggestion embodies an interesting explanation of some of the types of *permanent headaches*, for, of course, no reference is now made to the fact, which seems perfectly well established, that from forty to fifty per cent. of the cases of *functional cephalalgia* are largely amenable to the treatment of refractive defects and insufficiencies of the ocular muscles.

Another very important point attaches to this clinical suspicion,—namely, the occasional apparent inefficacy of correcting an ocular defect when, other causes for headache having been eliminated, it seems as if it ought to be the means to bring about relief. Once more to quote Dr. Mitchell: "Under these circumstances the mischief has lasted long enough to leave in the brain-tissues some lasting result of a too protracted strain, and we have as a consequence either perma-

nent or very frequent headache." His surmise is that, under these circumstances, the centres affected are left in an altered, perhaps congested state, or with a tendency readily to become congested even by the reasonable use of the eyes. The evident prophylaxis is the correction of ametropic eyes, or, more properly, astigmatic eyes, during the formative period of life, when the degree of the defect warrants interference.

Some dispute exists in the ophthalmological world in regard to the amount of the refractive error which should be neutralized. Some surgeons are satisfied only with the so-called "full corrections;" others base their corrections upon a definite rule, which requires that a given quantity of the refractive defect be allowed to remain unneutralized in such case; others order the "manifest correction;" and still others (and this seems rational) determine the amount of the error which should be corrected according to the patient's occupation, the apparent needs of the case, and the amplitude of accommodation and convergence. In this connection Dr. Mitchell's view, based upon the observation of a great many cases of headache, is instructive. He says, "There are sufferers from headache, due to defective eyes, who cannot endure very exact correction without increase of pain. There are others who find full relief only when the correction is very accurate." We assume that the use of the words "exact" and "accurate" used by Dr. Mitchell is equivalent to the term "full correction," usually employed by ophthalmic surgeons, and that it is understood, except under certain circumstances, that coexisting astigmatism should be completely neutralized. This is a just summing up of the case, for it is an undoubted fact that some patients with ocular headache find relief only in a full correction, although a vast majority (of hypermetropes, at least) are not comfortable under such conditions.

When a permanent headache is due to general causes, to defects of blood, to gout, rheumatism, toxic states, albuminuria or diabetes, malaria, syphilis, inefficiency of the stomach, bowels, or liver, when it is the result of fevers, sunstroke, or trauma, or when it is reflex from diseases of the ear, teeth, nares, or sinuses of the skull, the indications for treatment are contained in the cause. When it is due to the prolonged use of imperfect eyes without the aid of glasses, the influence of the refractive defect should be annulled; but, as has already been pointed out, these measures may be insufficient, owing to the probable permanent changes of the centres which have resulted from the long strain. Hence glasses are not alone sufficient, and Dr. Mitchell advises the trial of ordinary tonic influences, the use of the rest treatment only when other measures are ineffectual, and, under all circumstances, the building up of health to its greatest perfection, so that the centres may cease to feel acutely. Finally, especially when the headache is of occipital situation, a lightly- and frequently-applied cautery to the neck and cold douches to the upper spine are recommended.

Some time or other definite information may be at hand in regard to the cause of permanent headaches which are not the result of organic lesion or general causes, but evidently a new and interesting explanation of one type, which may be the result of eye-strain and which may persist even when the eye-strain is eliminated, is contained in Dr. Mitchell's surmise, and a valuable therapeutic as well as prophylactic lesson is taught.

THE STERILIZING OF HANDS AND SURGICAL INSTRUMENTS.

IT is universally recognized that the requirements for an antiseptic operation are sterile surfaces, sterile instruments, and sterile hands, with either sterile or mildly antiseptic solutions. The means for bringing about these various conditions are multiplying with such rapidity that it is impossible to follow them all. The fact that these means are inadequate is shown by the frequency with which suppuration occurs in operations on non-infected tissues. Reasons for these failures have been demonstrated in some modern researches and improved methods have been offered, which clinical trial has so far shown to be efficient.

Perhaps the majority of surgeons still rely upon carbolic acid lotion (1 in 20) for the disinfection of their instruments. Maljean has shown that it requires at least fifteen minutes of immersion in this solution to destroy the ordinary pus microbes. When these microbes are protected by dried albuminous matter, three hours' soaking will not accomplish disinfection. Germs of tetanus still survive after soaking for an indefinite period of time in strong carbolic solution.

All the septic germs are destroyed by ten minutes' boiling, provided they are not protected by rust or by layers of dried albumin. In

the latter case, half an hour's boiling is required for the septic germs; two hours for the tetanus bacilli. The addition of carbonate of sodium, 1 part to 100 of water, dissolves both the rust and the albumin, and entirely destroys pathogenic germs, even though they are protected, in from fifteen to twenty minutes. This represents the most rapid and most practical of all the disinfecting methods. It is, of course, applicable only to metallic instruments. Disinfection of instruments with rubber or ivory handles may be accomplished by first cleansing the handles in the same solution, carried not quite to the boiling-point, and then immersing them in 1 to 20 carbolic.

Immediately after an operation, instruments should be boiled for ten minutes in one per cent. carbonate of sodium solution, should then be thoroughly scrubbed in hot soap-suds, should be dropped into pure boiling water, should be dried by clean towels, and should be wrapped either in wax paper or in clean cloths. If following each operation, this procedure is adopted, it is impossible to have on the surface of instruments germs protected by rust or dried albumin. At the next operation, the surgeon can boil his instruments for ten minutes in a one per cent. solution of carbonate of sodium, place them in a dish covered with a similar solution, recently boiled, but not too hot to allow of immersion of the hands, and proceed with his operation, with the full assurance that it is impossible to infect the wound by any of his tools. An added advantage of the carbonate of sodium solution is that it prevents the instruments from rusting. If they are boiled and stored in distilled water, it takes but a few operations to get them so rusted that perfect disinfection is almost impossible.

The sterilization of the area of operation, and, most important of all, the surgeon's hands, has generally been conducted on the lines laid down by Fürbringer. This consists in thoroughly cleansing the nails by means of a penknife or other instrument adapted to this purpose; then with a sterilized brush scrubbing the nails and hands for one minute in hot soap-suds, immersing them in alcohol for one minute, and, finally, washing them in bichloride of mercury (1 to 500) for one minute.

Kelly (*American Journal of Obstetrics and Diseases of Women and Children*, vol. xxiv., No. 12, 1891), in an admirable paper upon this subject, has shown that this method is absolutely inadequate for thorough disinfection. The mercuric salt acts either by mechanically coating or chemically combining with some portion of the coccus, thus only inhibiting further growth, until the salt is precipitated or removed. As proof of this, after hands were thoroughly sterilized by the above method, Kelly made a number of cultures which showed apparent sterility. The bichloride remaining on the hands was then precipitated with a sterile ammonium sulphide solution, cultures were again taken, and all showed innumerable colonies, mostly of pus-germs. Four per cent. solutions of lysol, and also peroxide of hydrogen, failed to sterilize. The best method of destroying all germ-life was found to be as follows: The hands are scrubbed, with especial attention to the nails, for ten minutes, in water frequently changed, at about 104° F. The hands are then immersed in a solution of permanganate of potassium, made by putting an excess of the salt to boiling distilled water, until every part of the hands and lower forearms is stained a deep mahogany-red. They are then transferred at once to a saturated solution of oxalic acid until completely decolorized and of a healthy pink color. The oxalic acid is then washed off in warm sterilized water. In fifty experimental cultures of surfaces disinfected by this method forty-four remained without growth. The remaining six yielded very few colonies.

Kelly concludes his paper with the statement that soap and water are the best disinfectants, if we use but one means, since they remove all germs which come away easily. Bichloride of mercury, although dangerous in wounds, on account of its property of coagulating and causing necrosis of albuminous tissues, has the valuable property of inhibiting those germs with which it comes in contact. Permanganate of potassium and oxalic acid are harmless to the hands and are germicidal. Soap and water, plus the permanganate of potassium and oxalic acid, are the only true germicides, and therefore the best disinfectants we possess to-day.

After an experience of more than two years with this method of surface disinfection, Kelly holds that the clinical evidence of its efficiency is as convincing as the experimental research. Without doubt wound-infection still comes in the majority of cases from the fingers of the surgeon or his assistants; hence Kelly's method of cleansing the hands, supplied, as it is, by apparently convincing proofs of its germicidal powers, should be given a thorough trial.

Reports on Therapeutic Progress.

ANOTHER CASE OF SULPHONAL-POISONING.

DR. REINFUSS (*Wiener Med. Blätter*, January 7, 1892) reports the following case: The patient was a woman, 47 years old, but appearing older, of medium size, strong frame, oval skull; lungs and heart healthy. She had suffered for more than a year with hallucinatory insanity, and received for stubborn sleeplessness and unrest, from the 28th of May to 25th of August inclusive (the day on which the dark reddish-brown color of the urine was first noticed), almost daily from 15 to 22 grains of sulphonal in solution. The patient had taken altogether twenty-two and a half drachms of this remedy. The constipation existing at this time was cured by Carlsbad salt.

On August 25 the patient vomited, three times during the day, small quantities of a greenish, slimy fluid. She moaned, and complained of pain in her stomach and bowels. She no longer left the bed, nominally on account of a painful feeling of weakness in the bowels and a numbness of the legs. The urine passed showed for the first time a characteristic dark, pomegranate-brown color, and a marked deficiency in quantity. It contained no albumin, but a good deal of indican.

The patient was free from fever, and a careful examination showed nothing abnormal in the stomach region or abdomen; that lungs and heart were also normal. Sensibility, locality, and temperature perceptions were preserved equally. For the vomiting, the patient received several times daily a few drops of a one per cent. morphine solution, on ice pills.

In the following days there was no more vomiting; she still complained of pains in the belly. The patient could only move her legs in bed with difficulty. Attempts to stand and to walk were entirely unsuccessful. The color of the urine and its scanty quantity still persisted. The chemical microscopic examination of the urine showed that the dark color arose from hæmatoporphyrin. Distinct traces of albumin and renal elements were also found in the urine.

On August 30 there were two attacks of tonic and clonic spasms in various groups of muscles of uneven intensity, and unconsciousness, lasting from five to eight minutes. The urine, somewhat paler that day, was the next morning again of an intensely dark pomegranate color. The spasms were not repeated in the following days, but there were the same complaints of pain in the belly and a great feeling of weariness. The reflexes of the patellar tendons were somewhat diminished; sensibility of the skin was preserved; the lower extremities were noticeably cool.

On September 6 the pulse was 99; senses much clouded; speech low and jerky; tongue dry, rough; thirst increased; stools and urine passed spontaneously in the bed. The urine still had the dark reddish-brown color. No appearance of paralysis in the region of the nerves of sight; no exanthem anywhere.

September 7.—Pulse, 172 to 120, rhythmical, tolerably full; temperature of the body during the day, 100.2°, 99°, 99.4°, 99.7°; in the evening, 101.7°. Persistent thirst; profuse perspiration; muscular tremor, with benumbed senses; urine scanty, color unchanged; moist râles over both lungs. A passage from the bowels was secured after a clyster.

September 8.—Frequent, rapid pulse, 120 in a minute; accelerated respiration; no dulness of the lungs; senses clouded; great restlessness. Temperature during the day, 100.4°, 98°, 102°; evening, 104.9°; death occurred during the night.

TREATMENT WITH DERMATOL.

Dermatol, the basic gallate of bismuth, has been experimented with by DR. EUGENE DOERNBERGER. He reports the treatment of forty-three cases in a children's hospital. The odorless, yellow powder itself, a ten per cent. dermatol, with vaseline spread on lint, and ten per cent. dermatol gauze, were used singly or combined. Any mixing with other remedies already known was avoided. Besides the bismuth preparation, only Bruns's cotton, lint, and simple gauze were used.

Fifteen cases of weeping and scabbing eczema were treated with a dressing of dermatol in vaseline. Almost all were quite dry in one or, at the outside, two days. The scabs either fell off or were easily removed. Not only such simple eczema, as is often found on the ears and noses of children, but those more widely spread, both of recent and of long-standing, healed quickly. The remedy was not effectual in preventing the development and spreading of papular eczema.

Two children with general boils were treated. The small boils were punctured and pressed out; then sprinkled with derma-

tol powder, healing quickly; but the larger ones were healed more rapidly by ordinary iodoform-gauze tampons.

One case of pemphigus in a child 3 months old, and one of herpes zoster in a larger girl, were quickly cured.

Two large dermal abscesses, one of them on an individual with tuberculosis, healed well and soon, by packing with dermatol gauze, after removing the pus and washing antiseptically. The secretion on the next day was extremely slight, then nothing, so that only a very small amount of bandaging material was needed. The cavities closed quickly and well. The edges of the wound looked constantly very well. There was no trace of irritation eczema, such as often follows the use of other remedies for children. He had the same result in two cases of abscesses of lymphatic glands.

For injuries, dermal treatment was preferred. A cut on the sole of a foot, which had been neglected for fourteen days, and several shot-wounds of fingers, were successfully treated. In the first case pus was already present. At first dermatol was applied in a small quantity, but this was followed by a more generous use of it, which cured it in a few days. For the shot-wounds also a large quantity was necessary.

This remedy is admirable as a salve, thickly spread upon lint, to be applied to burns. Doernberger saw two cases,—one a burn with fat, the other with hot water. It is useful for burns with fuming nitric acid. The serous secretions, which are otherwise so troublesome, because they so quickly soak through the bandages, were very slight. The formation of new skin occurred with greatest rapidity beneath the layer of dermatol. In seven cases of otitis media, in which dermatol was blown in, the pus formation in the first days after dermatol was ordered was a much smaller one, and ceased entirely from the fourth to the sixth day.

These experiments showed Doernberger that dermatol was certainly of great value for treating moist, impetiginous eczema, and as an exsiccant; that it is odorless, nontoxic, not irritating, and, like iodoform, helpful to granulation, but possessing advantages over it. Whether it can also displace iodoform as an antiseptic, even when used in large quantities, must be proved more clearly by further experiments. Its greatest advantage in diseases of children is its harmlessness.—*Therapeutische Monatshefte*, February, 1892.

ANÆSTHESIA THROUGH THE COMBINED ACTION OF CHLORAL AND MORPHINE INJECTED SUBCUTANEOUSLY.

CADEAC and MALET contribute to *Lyon Médical* for February 14, 1892, a paper upon this subject. After speaking of the inconvenience and serious accidents which frequently occur in the dog and cat upon the administration of anæsthetic vapors, they detail a series of experiments upon chloral in which they found that when injected into the vessels, this drug produces complete and lasting anæsthesia. It was also found that when introduced hypodermically, it was likely to produce gangrenous inflammation. A number of other experiments in other animals all prove that chloral possesses anæsthetic power; particularly is this so when it is associated with morphine. The conclusions which are reached are as follows: The combined action of chloral and morphine is better for the production of anæsthesia in the lower animals than inhalations of chloroform and ether; that injections of these two agents in the dog and horse in the proportion of five drachms of chloral to one and a half grains of morphine will produce anæsthesia in a dog weighing sixty pounds; whereas, four ounces of chloral and fifteen grains of morphine, when given in this manner, will completely anæsthetize a horse. The morphine may, however, be injected under the skin if it is considered desirable.

CHLOROFORM.

At a recent meeting of the Berlin Pharmaceutical Society, SCHACHT discussed the subject of purification of chloroform, and objected to the statement of Du Bois-Reymond as to the stability of Pictet chloroform being due to its superior purity. The sample examined by him had a specific gravity 1.4848, and was assumed to contain one per cent. of alcohol. When washed sufficiently to remove the alcohol it suffered the usual decomposition when exposed to light. Schacht is of opinion that this change takes place the more rapidly the purer chloroform is, and that it results from absence of alcohol, not from the presence of foreign substances, as Du Bois-Reymond thinks. In a paper by Blitz, read at the same meeting, a similar opinion was expressed on the basis of comparative trials of ordinary chloroform and that prepared by Pictet's method. Blitz regards the decomposition that takes place under the influence of light and air as a natural characteristic of chloroform, and not as a result of the presence of impurities in minute pro-

portions. He also disputes the assumption that in this case crystallization can be an efficient means of purification, and he considers that if the Pictet method be really an improvement in the purification of chloroform, evidence of that must be given by proving the separated impurities to be hurtful in themselves, and the prejudicial influence of the amounts present in ordinary chloroform to be such as would render their removal necessary or advantageous. In the discussion on the subject, R. Du Bois-Reymond replied more from the medical point of view as being in his opinion of paramount importance, but the general feeling of the meeting appeared to be in favor of the view that physically and chemically there is no sensible difference between the chloroform prepared by Pictet's method and any other kind of well-purified chloroform (*Pharm. Centr.*, xxxiii. 80). The experimental data that have been put forward to prove a difference between the effects of pure chloroform and those of the impurities stated to be present in ordinary chloroform are not favorably received by medical critics, and the absence of any chemical evidence as to the nature of the impurities alleged to be present in chloroform and separated by Pictet's method leaves much room for doubting the value of that method.—*Pharmaceutical Journal and Transactions*, February 27, 1892.

THE TREATMENT OF NEURASTHENIA BY INJECTIONS OF NERVOUS MATTER.

Constantin Paul, before the Academy of Medicine of Paris, at its meeting, February 16, 1892, reported the results which he had obtained in a number of cases from the subcutaneous injection of nervous matter. Three of his patients suffered from chlorosis with neurasthenia; three from simple neurasthenia, one was a case of permanent slow pulse, four were ataxias or tabetics. In all of these cases the patients were cured, or the symptoms ameliorated. The liquid which Paul injected consisted of five cubic centimetres of a sterilized ten per cent. solution of the gray matter of the sheep's brain. Injections were given in the lumbar region. In all instances the injections were tolerated and did not produce reaction, local or general. When, as an exceptional accident, engorgment of the lymphatics took place, this disappeared on the third or fourth day, or on the seventh day at most. Even after two hundred injections had been given, no abscess or pustular acne was developed. The first symptoms of improvement noticed was a sensation of increased systemic force and general good health. The lack of muscular power quickly disappeared. In other instances the vertebral pains, or spinal hyperæsthesia disappeared, and even the fulgurant pains of ataxia and the severe headaches of neurasthenia were removed. Functional brain power also seemed to be increased. The appetite improved, and the dyspeptic symptoms which were present in the chlorotic cases disappeared. The nutrition became better, and the whole condition of the patient was improved. The sexual power was influenced favorably. For these reasons, Paul considers that the gray matter of the cerebral cortex constitutes a powerful tonic in neuropathic cases, producing at once a gain in weight.

Finally, in *résumé*, Paul asserts that this treatment is not to be compared in efficiency with iron, arsenic, the phosphates, opium, and alcohol.

TREATMENT OF CHOREA WITH EXALGINE.

Dr. Hugo Löwenthal quotes the statement of Dujardin-Beaumetz, that exalgine is not only an anodyne, but also acts upon the cerebro-spinal nervous system, and has a favorable effect upon convulsive conditions. Löwenthal has tried it, and reports thirty-five choreic patients treated by him with exalgine during 1891. The doses were 3 grains three times a day, in some cases increased to five times a day, so that the amount given in a day never exceeded fifteen grains, nor fell below nine grains, except in the case of a 3-year old boy, who was given 1½ grains three times a day. The powder was administered in sweetened warm water. The patients ranged from 3 to 18 years of age. In some cases the chorea was light; in others quite severe. In general the result was satisfactory. Light cases were quickly cured; severe ones required a longer time. The duration of the cure varied from eight days to four months. Two boys who had slight attacks were cured in eight days. The average duration was five to six weeks.

Improvement was noted in some cases after taking twelve powders, or thirty-six grains; but in most cases it was not until after seventy-five or ninety grains had been taken. The smallest amount given was to an 8-year old boy, who took thirty-six grains in a week, and was dismissed cured.

Along with the good action of exalgine, unfavorable symptoms were also noted. Ringing in the ears, intoxication, motes before the

eyes, vomiting, increase of existing pain, headache, and cyanosis which had already been noted by Rabow, Heinz, Cahn and Stepp, Gaudineau, Binet, Bokenham, and Jones. The last two also noted one case in which there were symptoms of poisoning. This depends upon the size of the doses and a protracted use of exalgine. Direct symptoms of poisoning Löwenthal did not see. In every instance, upon the appearance of an unfavorable symptom, he at once suspended the use of exalgine. The small doses given could be continued for months.

The bad results which he himself noted were nausea, once; vomiting, four times; weariness, twice; headache, twice; vertigo, once; vertigo, numbness, and vomiting, once; jaundice, three times.

As far as known, these are the first cases of jaundice following the use of exalgine to be reported. Cyanosis of the lips was noted once.

It must not be inferred from this list of bad results that the beneficial results of exalgine are cast in the shade. On the contrary, the exalgine was satisfactory in the majority of cases, although no specific action in the cure of chorea can be claimed for it.

The urine was examined occasionally. Once it had a brown color, tinged with green (this was not a patient with jaundice). Albumin and sugar were not found. The blood was frequently examined under the microscope, but nothing abnormal was found.

TYPHOID FEVER IN CHILDREN.

A clinical lecture by PROFESSOR JULES SIMON is reported in the *Int. Klin. Rundschau*, January 24, 1892. Simon calls attention to the general and special treatment of typhoid fever in children, as illustrated by four cases under his care. The first was a boy, 13 years old, first seen by him on the fifteenth day of illness. He had a marked roseola. Contrary to the opinion of some authors, Simon remarks that the red spots appear with the same regularity in children as in grown persons, and have the same tendency to become confluent. Till the twentieth day the disease followed its usual course. The temperature then dropped almost to normal, and on the following day an unexpected hemorrhage from the bowels occurred.

Hemorrhages from the bowel in children with typhoid fever are rare. They occur under two easily-distinguished conditions, and call for a different prognosis. In some cases, and this was true of the case in question, the hemorrhage is unaccompanied by alarming symptoms, and the general condition is satisfactory. It forms a sort of crisis, which is not alarming. It is quite different if the hemorrhage occurs when the general condition is threatening. Contrary to the first case, the pulse is very frequent, and the temperature moderately high; in this case the bleeding is most serious, and death follows soon.

In the case of Simon's patient, the hemorrhage occurred under favorable conditions, and the following treatment was used: Ice was applied to the belly. Two clysters, containing four to five drops of laudanum, were given daily; and for a beverage, diluted sulphuric acid, and fifteen drops of the tincture of the chloride of iron. Absolute quiet was also insisted upon, and, as nourishment, iced bouillon was used exclusively. The result of this treatment was especially satisfactory.

The second patient had an abortive typhoid.

In the third patient, the disease was marked by very pronounced ataxic and adynamic symptoms. In view of these marked nervous symptoms, it was thought well to use general baths. The results of this treatment were very favorable.

The fourth patient had a very regular typhoid, absolutely without any complication or anything abnormal. The therapeutics used for this child were the same as are frequently used in the typhoid fever of children. In the first place, the hygiene of the typhoid patient must be cared for. As soon as the case is diagnosticated, as far as possible, the patient's room and his bed must be changed night and morning.

The whole body is to be bathed twice daily with water, at about 86°, containing an aromatic (thymol, etc.). This bathing must be done quickly, by wiping off first the front and then the back of the body with a sponge. Immediately following this, the patient should be wrapped in a blanket to secure a mild reaction. This course is always followed, if the hyperthermia is unaccompanied by any signs of profound intoxication and there is no serious weakening of the nervous system.

On the contrary, if symptoms of ataxia or adynamia accompany the high temperature, Simon employs general cold or temperate baths. The baths must be given every three hours or oftener, and should last a quarter of an hour.

An enema should be given morning and

evening. If the passages are fetid, a solution of boric acid or weak aromatic water is indicated for the enema.

As a beverage, lemon- or orange-juice. For food, only bouillon during the whole period of fever. Milk is rarely ordered by Simon, as it is badly digested in most cases, and when taken nearly always causes a slight increase of fever. He, however, allows milk during the convalescence.

If the patient be restless, he prescribes:

Chloralis, gr. viiss;
Aq. dest., f℥iiss;
Tinct. moschi, gtt. xx;
Syr. aurant., f℥v.

This medicine is given during twenty-four hours in coffeespoonful doses. He prefers it to bromide of potassium, because the latter causes slight disturbance of the digestion.

If the child complains of headache, he prescribes a small dose of syrup of codeine. Codeine is the only preparation of opium which may be used in typhoid fever in childhood. The extract of opium, which is so often given to adult typhoid patients, cannot be given to children, as it disturbs digestion.

From the fifteenth day he prescribes the chloride of iron in the following manner: At first, 1 drop every two hours; then, after two or three days, 2 drops. The drops should be given in sweetened water. The patient is then allowed to drink a little bouillon, then the medicine, then the rest of his soup.

The chloride of iron, Simon says, is an excellent medicine in typhoid fever in children. It has done him good service. It not only acts as a tonic, but it also favors the digestion of food, and on that account must be continued during convalescence.

Quinine must be given during the whole course of the fever. The dose varies according to the age of the child and the symptoms which call for it.

LOCAL TREATMENT OF DIPHTHERIA WITH CHLORIDE OF ZINC.

All the investigations and experiments made, prove that in treating diphtheria the physician should make it his first duty to destroy the bacilli, thus preventing them from spreading, and the poison from extending and causing systemic poisoning.

Dr. Wilhelmy, of Berlin, says this is possible, and commends a method of treatment which he has used with great success for twelve years.

We possess in chloride of zinc, he says, a caustic, which, if used strong enough and energetically applied, will reach to considerable depth, although it does not affect the mucous membrane, which is still covered with healthy epithelium. Only the infected places are cauterized, including also those which still appear perfectly healthy to the naked eye.

Dr. Wilhelmy uses a twenty per cent. solution, cauterizing but once, and that as early in the disease as possible. If the false membrane had already spread over the pharyngeal and nasal spaces, the prospect of a good result would be much lessened.

He lays very great stress upon the manner of cauterizing. It must be done with a few rapid strokes, touching every part of the tonsils, the arch of the palate, and the posterior pharyngeal wall. Wilhelmy uses a toothed forceps about seven inches long and slightly bent. A piece of cotton a hand-length long and three fingers broad is wound tightly about the forceps, making a roll about as thick as a finger. The tongue is first pressed down with a Charnier tongue-depressor, then the middle finger of the left hand placed under the chin. The forceps with well-soaked cotton is then inserted and the parts indicated vigorously wiped off. A great part of the false membrane sticks to the cotton and comes out on it. Still, less depends on the amount of membrane removed than on the thorough soaking with the chloride of zinc. To allay the severe pains after the cauterizing, he lets the patients suck ice or drink ice-water. Only in one case did the patient suffer more than six hours.

From the very first of the illness wine and strong soup should be freely given, to prevent the patients from becoming weak.

A less concentrated solution of the zinc does not give a good result. Most hospital patients are brought too late for this treatment to help them. Very great care is needed in carrying the chloride of zinc; it must be in a small vial, and there must be a hypodermic needle inserted into the bottle beside the stopper, to allow the gas to escape, otherwise the cork will not stay in.—*Deutsche Med. Wochenschrift*, February 4, 1892.

[Wilhelmy's method, even if efficacious, is practically useless owing to the impossibility of carrying it out satisfactorily, at least in America. There are other remedies, for example, such as peroxide of hydrogen, which are very efficacious and free from danger.—Ed.]

THE THERAPEUTIC USE OF THIOPHEN.

EDUARD SPIEGLER says that thiophen is a sulphur-holding hydrocarbon of the aromatic series; a benzol product. In its pure state it is a colorless, clear, volatile oil, boiling at 283°, of slight odor, and will not mix with water.

The thiophen combinations which have been considered from a therapeutic standpoint are: 1, sulphate of sodium thiophen; 2, thiophen iodide.

Thiophen sulphate sodium is a white powder, crystallizing from a solution in lamellæ. It contains thirty-three per cent. of sulphur, half of it combined with carbon. Alone it has a slight unpleasant odor, but this is absolutely imperceptible in the five to ten per cent. salves which are used. This salve, with equal parts of lanolin and vaseline, was used for prurigo, both for slight and for severe cases. One-half of the body was treated with five per cent. β-naphthol as a check experiment, and the other with the thiophen salve.

In about thirty cases treated with this preparation for a short time, the result was satisfactory, cure being effected usually in a week. The skin became smooth, the swelling diminished, itching ceased. The use of a ten per cent. salve healed more quickly than the five per cent. one. It can be used freely, as there is nothing harmful about it, and it does not irritate the skin at all, advantages which have special weight in the case of young patients.

The thiophen sulphate of lead has a like effect, except that in many individuals it causes a slight burning for a few moments. The slower working of this combination is explained by the smaller quantity of thiophen which it contains, corresponding to the high combining weight of lead.

The thiophen iodide was used to replace iodoform. This is thiophen in which two atoms of hydrogen are replaced by two atoms of iodine. It crystallizes in beautiful tablets, which are insoluble in water, but easily dissolved in the usual solutions. It melts at 104.9°, and is fluid in the air. The substance has a characteristic not unpleasant odor. In the form used of ten per cent. gauze there is a slight pleasant aromatic odor. It is insoluble in water; very easily soluble in ether, chloroform, and warm alcohol; less easily in cold alcohol. It contains 75.5 per cent. iodine, combined with carbon, 9.5 per cent. sulphur, which is also directly combined with carbon.

As a certain antibacterial power may be expected from sulphur combinations, so favorable dermo-therapeutic and antiseptic value may be looked for in a substance containing iodine and sulphur. This has been proved both in the laboratory and at the sick-bed.

Some experiments to determine the value of it for staphylococci were made in the hygienic institute of Professor Max Gruber, and it proved to have a marked influence in preventing development. The portions of cultures which were sprinkled with a camel's-hair brush with thiophen iodide, remained perfectly sterile after twelve days, while the same cultures not sprinkled had most of them become quite fluid after two, and entirely so after three, days. These portions were exposed to ordinary house temperature. In one portion, one-half of which was sprinkled, the culture had become entirely fluid on the unsprinkled side at the end of forty-eight hours, while the sprinkled side had only become fluid (at the outside edge, less than one-quarter of an inch, where little powder fell) at the end of fifteen days.

In relation to these most frequent exciters of pus, this preparation does all that can be asked for in the destruction of the nourishing soil. A direct antisyphilitic action against chancre was not observed. The experiments to this end showed that thiophen iodide as a powder cleansed the chancres very quickly; but gray plaster had to be used to hasten the formation of skin.

Perfectly satisfactory results were obtained in the treatment of wounds. It was used for many cases of burns,—ten per cent., or, for more severe burns, twenty to thirty per cent. gauze was used; the former especially showed itself much preferable to iodoform. No bad results followed.—*Therapeutische Monatshefte*, February, 1892.

AN ANTISEPTIC SOLUTION FOR VAGINAL INJECTIONS.

L' Union Médicale states in its issue for February 29, 1892, that the following is used by SUNAR for the purpose of rendering the vagina antiseptic:

℞ Beta-naphthol, ʒiv;
Alcohol, ʒxxx. M.

Sig.—Make into solution and add a teaspoonful to a quart of water which has previously been boiled and filtered.

This mixture is then given as a vaginal injection, cold or hot, as the case may require it.

THE TREATMENT OF NEURALGIA BY HYPODERMIC INJECTIONS OF COCAINE.

MALHERBE, of Nantes, states that he has obtained very good results from the employment of cocaine hypodermically, for neuralgia, in one of the following formulæ:

℞ Hydrochlorate of cocaine, gr. xv;
Water, ʒvi.

Or,

℞ Hydrochlorate of cocaine, gr. xv;
Boric acid, gr. viii;
Distilled water, ʒvi.

Or,

℞ Neutral glycerin, ʒi to ii;
Hydrochlorate of cocaine, gr. xv.

In making these solutions it is necessary that the cocaine should be absolutely pure. If it is used externally over the nerve it may be dissolved in liquid vaseline in the proportion of two per cent. The method which Malherbe employs is to raise a small portion of the skin immediately over the seat of pain, and to inject underneath it a drop of the anæsthetic. The tender nerve is found by the pain which is elicited by gently moving the needle about in the tissues which have been made anæsthetic by the first drop which has been inserted by the needle, when several more drops are traced directly in contact with the nerve fibre. Notwithstanding the rapid absorption of cocaine in the blood-vessels, this writer has not seen the untoward effects which others have observed in the hypodermic injection of these drugs, particularly when used about the head. It was found also that larger doses could be used after the drug had been given for a number of days, the patient becoming immune to the smaller doses.

TREATMENT OF WHOOPING-COUGH WITH BROMOFORM.

DR. J. CASSEL (*Deutsche Med. Wochenschrift*, February 4, 1892) quotes the several writers who have warmly commended the use of bromoform for whooping-cough, and gives his own observations, based on forty cases treated by him. There is not much to claim for it as shortening the duration of the disease; but, beyond a doubt, it lessens the number of paroxysms in a day. Only small doses—4 or 5 drops, three times a day—should usually be given. Large doses are dangerous, because they may poison the patient. Löwenthal reports such a case. Bromoform must be specially useful to such as hesitate to use morphine or chloral in the case of children.

While appreciating its value, Cassel cannot think that it will entirely take the place of other drugs. Quinine, belladonna, and antipyrin will hold their own when compared with the newer remedy.

THE TREATMENT OF BILIARY CALCULI WITH GLYCERIN.

In a paper read before the Academy of Medicine of Paris, March 8, 1892, FERRAUD recommended the employment of glycerin in the treatment of hepatic colic, in the dose of from 3 to 8 drachms a day, combined with Vichy water, and administering at the time of the attack from 5 to 6 drachms of chloroform-water.

He had employed this treatment with very satisfactory results in twelve cases, and had carried out a series of experiments upon animals, in which he showed the presence of glycerin in the lymphatics and the liver. He also found that it caused in one case a great secretion of fluid bile.—*La Mèdecine Moderne.*

THE MEDICAL TREATMENT OF ERYSIPELAS.

In *L'Union Mèdicale*, CHÉRON, in the issue for March 10, 1892, contributes an article upon the treatment of erysipelas, gathering his information from a large number of journals, and thereby presenting the methods of a large number of physicians.

He states that in the *Wiener Klinische Wochenschrift*, No. 29, 1892, Koch recommends the following solution:

℞ Creolin, 1 part;
Iodoform, 4 parts;
Lanolin, 10 parts. M.

This pomade is thoroughly spread over the erysipelatous patches and covered with gutta-percha.

Roth employs the following:

℞ Creolin, 1 part;
Prepared chalk,
Lard, of each, 15 parts;
Peppermint oil, a few drops.

This is applied to the inflamed part, and produces a cooling effect, which has very excellent results.

In the hospital at Copenhagen, Ulrich has employed cold compresses, and applications of tar and ichthyol collodion, which is made as follows:

℞ Ichthyol, 5 parts;
Ether, 5 parts;
Collodion (flexile), 10 parts.

He gives at the same time, internally, sulphate of quinine to reduce the temperature, and states that he thereby exercises a distinct influence upon the development of the disease.

On the other hand, Scktcherbakof limits the spread of erysipelas by applying ointments made up by adding one drachm of sulphate of iron to one ounce of vaseline.

Besnier uses the following lotion, and applies it by means of compresses:

℞ Salicylate of sodium, 20 parts;
Bicarbonate of sodium, 10 parts;
Boiling water, 1000 parts.

Allen is said to recommend the following:

℞ Compound tincture of benzoin,
Flexile collodion,
Glycerin, of each, ♏xlv. M.

This is to be applied to the inflamed part, and tincture of the chloride of iron is to be given internally in very full doses.

At Göttingen the treatment of erysipelas consists in the application of lanolin, composed of 1 to 1000 of corrosive sublimate, and it is claimed that this treatment produces a speedy cure.

Jacovlew, of Moscow, praises very highly the application of tincture of iodine, which is thoroughly painted around the inflamed part. In twenty cases the disease disappeared twenty-four hours after this application, and he has failed to see great irritation of the skin follow it.

Calliano employs corrosive sublimate in the following solution:

℞ Corrosive sublimate, 1 part;
Chloride of sodium, 2 parts;
Distilled water, 1000 parts. M.

Minute incisions are made around the inflamed area, which is then disinfected by means of this sublimate solution. The erysipelatous area is then washed with alcohol, and covered with compresses wet with an aseptic solution, and evaporation prevented by an impermeable dressing.

At the same time one to two drachms of benzoate of sodium are given each day, or a similar quantity of the salicylate of sodium is given by rectal injection. In forty-one cases of erysipelas, Calliano claims eight successes in the way of aborting the attack.

THE USE OF DIGITALIS IN AORTIC DISEASE.

In the *British Medical Journal* for March 12, 1892, DR. BARRS, of Leeds, reaches the following conclusions in regard to the use of digitalis in aortic disease:

1. In all cases of valvular disease, the chief desideratum in regard to the heart itself is the condition of the cardiac chambers in respect to dilatation and hypertrophy.

2. That the presence of symptoms in cardiac disease always means failure of compensation.

3. That the condition described as over-hypertrophy or over-compensation does not exist.

4. That the dangers in aortic disease arise from the same cause as the dangers in mitral disease,—namely, failure of the compensation,—that is, failure of the ventricular muscle to overcome the ever-increasing work put upon it.

5. That if digitalis is safe and beneficial in mitral disease, it is equally so in aortic disease.

POISONING BY EXALGINE.

In the *Medical Press and Circular* for March 16, 1892, GILLESPIE reports a case of poisoning by exalgine.

A young man, aged 23, had had previously an attack of acute meningitis. He suffered from severe attacks of toothache. At 2 P.M. he took a dose of exalgine to the amount of about 6 grains. As this did not relieve the pain, he repeated the dose twice during the evening, but did not take the trouble to weigh it. Nine hours later, the pain not being better, his brother gave him another dose, and shortly after this he became suddenly unconscious. As far as could be learned, he took altogether about thirty-six grains of the drug.

When first seen he was insensible, with his head thrown back, the muscles of the neck rigid, the pupils widely dilated. He had deep breathing, and the pulse was 79 beats per minute. The muscles of his trunk and arms and legs were paretic. Every few minutes he would have a convulsion, which would begin with risus sardonicus, and groaning, followed by violent rolling of the head and neck, with a spasm of the cervical muscles, the muscles of the abdomen also contracting spasmodically. The limbs were a little affected. The pain in the head was an exceedingly severe symptom, so severe as to make him wish to dash his head against the wall and kill himself.

Pricking of the hand or arm, or tapping of the head, always produced a spasm. Fourteen hours after the dose he was a little quieter, but there was some Cheyne-Stokes breathing, and the pupils were contracted. He had universal anæsthesia, but his pulse continued good. Twenty-four hours after the dose had been taken most of the symptoms had passed away, there being only an irregular anæsthesia in the arms and legs. On the following day he was excited by the visits of some friends, and had slight convulsions and anæsthesia. The treatment of the case consisted in the administration of opium and spirit of mindererus. Stimulants were not necessary, because the pulse remained good during the attack.

After quoting a number of cases of poisoning by exalgine which have been reported, Gillespie concludes that the drug is one which is dangerous and must be used with extreme caution; and, above all, it is not a safe drug to be used by the patients themselves.

FURTHER EXPERIMENTS WITH PHENOCOL.

Dr. P. Cohnheim reports some experiments made with hydrochlorate of phenocol. He tried to learn the very smallest quantity of the remedy which was successful, and observed an antipyretic effect from four grains. The largest single dose tried was fifteen grains, and the largest quantity given in one day 67½ grains. The results obtained agreed in general with those given by Hertel and Herzog; but Cohnheim observed a more marked antifebrile action, especially in hectic fever; an average fall in temperature of 2° from 7½ grains of phenocol, once of 4°, and twice of 3.5°, was observed. The individual condition may have been of importance here.

The time in which the temperature sank to the minimum was from three to four hours after the administration of the drug. Profuse sweating and a slight chill upon an increase of temperature were also noted, as well as the dark urine produced by the larger doses, and the characteristic reaction.

As an antineuralgic, it had no action in hysteria, nor in other affections in which other antineuralgics and narcotics were powerless. Albumin and urobilin could not be detected in the urine. It was successful in cases of acute rheumatism, but not in the case of chronic joint rheumatism. As an antiasthmatic, it had no success. The further use and experiments with this preparation, especially for neuralgia with influenza, are to be pressingly urged. A more extensive observation of the new remedy will inform us more exactly about its good and bad characteristics.—*Therapeutische Monatshefte*, January, 1892.

PENTAL AS AN ANÆSTHETIC.

Professor Hallaender, of Halle, highly recommends pental as an anæsthetic, especially for use by dentists, as it is possible to produce a condition of partial anæsthesia, which is quite profound enough for many short operations. He says its use is not attended by any of the dangers incident to other anæsthetics.—*Therapeutische Monatshefte*, January, 1892.

BACTERIOLOGY AND THERAPEUTICS OF DERMATOL.

Dr. A. Bluhn (*Therapeutische Monatshefte*, December, 1891) has experimented extensively to learn the effect of dermatol upon the following bacilli: Staphylococcus pyogenes aureus, staphylococcus pyogenes albus, streptococcus, bacillus pyocyaneus, vibrio Finkleri, vibrio choleræ asiaticus, bacillus typhi abdominalis, bacillus acidi lactici, micrococcus tetragenus, bacillus subtilis, bacillus anthracis, and bacillus prodigiosus. These experiments showed that a free use of the dermatol had a very marked influence in preventing the growth of bacilli, and in a few cases it caused the death of the bacilli. It is safe to predict that, in view of these facts, dermatol will take a place among the dry antiseptics. Entire absence of irritating effects and its being odorless, give it an advantage over iodoform. It will never entirely supersede the latter, but will be used in many cases instead of it.

In eight cases of ulcus cruris, which were treated with dermatol, seven resulted very favorably; one was at first unfortunate, but doubtless the plaster was to blame and not dermatol, for the very thin-skinned surroundings of the small ulcerations were excited by the close hold of the plaster. Healing soon followed when more cotton had been laid underneath. All the cases were treated in the following way: Thickly powdered over with the dermatol, then covered with a thin layer of Bruns's cotton, and over this a

bandage of adhesive plaster. On changing the bandages, which was first done on the third day, and then at an interval of eight days, the ulcer was washed with sterilized water. In the mean time the patients went about their usual occupations. Pain only occurred once, when the wad of cotton was forgotten, and usually on the eighth day before the change of dressing. However, Bluhn did not hasten the dressing, as he found that by remaining longer the new skin formed more quickly than when the dressings were frequently renewed. In one case where iodoform was pronounced "unendurable," dermatol was not objectionable. In the treatmant of ulceres cruris he had the opportunity to observe the action of dermatol in lessening the secretions. After the first application, there was, save in one case, an increase of secretion, until, as was shown on changing the dressing, the greasy coating gave way to beautiful red granulations. From that time on even the patient noted the lessening secretions.

The same good service was done by dermatol in numerous minor surgical cases; a carbuncle was excellently healed by it after being cut crosswise. It was also used successfully in minor gynæcological operations. In the treatment of uterine catarrh, the result was very varied, which may be ascribed to the difficulty of applying dry substances to the inner surface of the uterus. Bluhn treated twenty cases in all, where the dermatol was blown in by means of a catheter and a double bellows; the result was surprisingly good. This method has its drawbacks, the chief of which is the catheter becoming stopped up. With emulsions of dermatol and glycerin he had favorable results in isolated cases. Erosions usually healed slowly under dermatol. In cases where, in spite of the treatment of the original catarrh, no formation of new membrane occurred, recourse was taken to the old and tried remedy, —chromic acid.

Internally, he only used dermatol once for catarrh of the bowel, which only ceased during the use of opiates, and then gave ¾ drachm two or three times a day. He never saw the patient again, but learned that immediately after the first dose there was a slight hemorrhage, which had never occurred before. Not a very encouraging result.

He remarks, in closing, that a dentist who made trial of dermatol, was rewarded by excellent results.

INVESTIGATIONS WITH SALOPHEN—A NEW SALICYLIC ACID DERIVATIVE.

The fact that salol is poisonous has led to many experiments to try to find a substitute possessing all its good qualities and yet itself harmless. Such a drug DR. W. SIEBEL believes has been found in salophen. It appears in small, white crystal lamellæ, which are nearly insoluble in water. It is perfectly odorless and tasteless, is easily soluble in alkalies, alcohol, and ether, and melts at 368° to 370°.

Dr. Siebel made various experiments upon dogs and rabbits with it, and he believes that we possess in salophen a remedy which has all the favorable qualities of salol, and many advantages over it. It is absolutely odorless and tasteless, and considerably less poisonous than salol. It is barely possible that a too energetic division or defective excretion might cause a salicylic acid intoxication. A dose of 7.4 grammes per kilogramme of body-weight proved fatal in rabbits; 5.3 grammes per kilogramme produced no symptoms of poisoning.

We need have no fear as to the other compounds,—acetylparamido-phenol.

Salophen has already been tried in a hospital by Dr. Guttmann. He reports favorable results, and no appearance of bad results.—*Therapeutische Monatshefte*, January, 1892.

TREATMENT OF NON-PURULENT PLEURISY WITH SALICYLATES.

DR. H. KÖSTER (*Therapeutische Monatshefte*, March, 1892) reports his trial of salicylic acid in the treatment of thirty-two cases of pleurisy, and thinks it is a remedy which deserves to be better known. Twenty-seven cases were of primary serous pleurisy, in which the lungs gave no sign of any change of a tubercular nature, and the exudate was a clear yellowish serum, and there was also no indication in the history of the possible presence of tuberculosis. The result was decidedly favorable in seventeen of these cases. Some of them were very ill, dulness existing throughout half of the chest, and the respiratory sound being in some entirely absent, in others intensely bronchial. Besides this, while some of the cases were new ones, the disease only having existed a few days, others were already of several weeks' standing. Most of the patients had fever when admitted, but in nearly every case this began at once to diminish, and in a few days was entirely gone.

Soon after beginning the use of the salicylic acid there began to be a resorption of the exudations, which advanced rapidly, and was usually complete in a short time. After two to four days there was a marked lessening of the exudate, and in most cases it had entirely disappeared in from five to seven days, even when the exudations were very considerable.

The dose was 15 grains of salicylic acid or salicylate of sodium, in doses of 22 grains, three or four times a day. There were, on the whole, good results, although no constant action can be claimed for it. In some cases nothing was achieved by it, although they were seemingly of the same nature as those so favorably influenced by it.

THE DIETETIC TREATMENT OF HEART-DISEASE.

Dr. Felix Hirschfeld, while occupied with the investigation of the assimilation of corpulent people, observed that, with the progressing loss of bodily weight there was also a loss of organic albumin. This loss is not prevented, or even greatly lessened, by the consumption of larger quantities of albuminates. Every Banting process is to be looked upon as a diminished nourishment, with the added fact that the assimilation is considerably increased by great muscular exercise. The loss of albumin is greatest in the first week of Banting. With a loss of weight of from four to five pounds Troy, there will be a loss of four to eight drachms of nitrogen, corresponding to thirteen to thirty ounces of muscle.

The loss of nitrogen is considerably greater when the patient is plethoric than in the case of an anæmic person.

It is remarkable that, in spite of the loss of albumin, physicians have found almost always an increase of muscular strength, especially of the heart, during gradual Banting processes.

To determine whether this would continue to be the case, Dr. Hirschfeld tried experiments upon himself and other healthy persons, and found that with their food reduced to a half or one-third the usual quantity, there was no weakening of the heart; this was true of thin and not specially strong persons, as well as of those who were moderately stout and strong.

The lessening of nourishment makes also a change in the circulation. In the first place the volume of blood is diminished, for the blood does not become more watery; the quantity is of the same concentration but smaller. With the smaller quantity of blood, the demands upon the heart are less, this bearing an analogy to cupping, in which case the lessening is more rapid.

Another point seems even more important. Whenever food is taken, the processes of the glands and of the muscles of digestion demand an increase of oxygen, which the heart must provide by increased activity; the more frequent and the larger the meals, the higher the demands upon the heart. The slight weakening of other organs is not to be deprecated in comparison with the favorable result for the heart. For example, in the case of valvular trouble following rheumatism, it has been customary to allow but small quantities of food, but present knowledge demands that the nutrition be kept up by abundance of easily-digested food, especially milk.

Hirschfeld quotes various authors who have used the milk-cure for heart-trouble. This is simply a "hunger-cure," and is in general seldom used, because opposed to the prevailing idea of nourishing the organism as much as possible. He finds in the results quoted another proof of the value of diminished nourishment, another means available to lighten the labor of the weary heart. While seeking to increase the power of the heart, the course is made easier by making the demands upon it as slight as possible.

Hirschfeld thinks the strengthening of the heart-muscles by exercise, as practised at Marienbad, is decidedly dangerous. The whole "cure" being often made in six weeks, necessitates a rapidity which is not safe. It is quite possible that corpulent persons repeating this "cure" yearly, or every second year, bring about a weakening of the heart's walls. Often these very persons, pleased with the rapid loss of weight, console themselves as soon as their six weeks are over, with an added luxury of living and richer food. The strengthening of the heart by muscular exercise should be accomplished slowly.

In the treatment of corpulency there often occurs, in spite of the loss of albumin, an increase of muscular power, especially of the heart. The smaller amount of food produces conditions of the circulation which lighten the work of the heart.

In strengthening the heart by means of exercise, especially in corpulent persons, it only should be gradually increased. When the heart is urged to oft-repeated exertions

in a short time, there is a tendency to dilatation of the heart by a weakening of the heart-walls.—*Berliner Klin. Wochenschrift*, March 11, 1892.

THE THERAPEUTICS OF OXYGEN AND COMPRESSED AIR.

W. BRÜGELMANN (*Therapeutische Monatshefte*, March, 1892) describes, from his large experience, the use of oxygen and compressed air. For the preparation of purified oxygen he has two retorts, consisting each of the retort proper, finished with a rim extending slightly about the edge, and of a cupola-shaped cover, which is easily placed in the rim. At the top of the cupola is a wrought-iron tube, bent to a right angle and connecting with a lead pipe, on the end of which a rubber tube is fastened. The retort is filled with chlorate of potassium and peroxide of manganese, the lid is put in and sealed with plaster of Paris, and the retort put over the gas-burner. The outlet is then connected with one to two Wolff's bottles of solution of caustic potash, in order to neutralize the superfluous chlorine, and receive the pure oxygen gas. For the reception of the gas, rubber sacks, capable of containing four hundred quarts, which have a stop-cock at the end are used. Such a sack should be entirely emptied, then laid on the floor, the cock opened, and connected with the rubber tube. The purified gas should be allowed to go in it until it is tightly filled, then the cock closed, and the sack taken wherever desired. Brügelmann has used them with the Waldenburg apparatus, hanging on the weight, and allowing as much oxygen to enter the kettle as he pleases.

The matter is extremely simple, and absolutely without danger; an ordinary wrought-iron retort never bursts. In the expulsion of its third equivalent O is, as is known, the most explosive gas product; therefore, to prevent the boiling over into the flasks, the gas-burner must always be lowered for a few seconds, but not too long.

The preparation of pure oxygen is therefore no obstacle for therapeutics. Brügelmann obtained the same results whether large or small quantities were inhaled at a sitting, therefore he has discarded his oxygen armory, but remains firm in the belief that the use of compressed air is an eminent and excellent factor in the healing art, and that it accomplishes splendid results in asthma, emphysema, bronchial catarrh, and chlorosis, pleurisy, and valvular defects.

It is questionable how the healing with compressed air is carried on. The masks used in several systems of administration, Brügelmann says, are not suitable. A mask never closes properly, unless it is so tight as not to allow of free breathing.

Brügelmann uses a long, conical mouthpiece of patent elastic, which is well lined at the mouth, or wide end, so that the teeth can be pressed against it without closing it up. This is connected with the hard rubber cock, and the open end placed in the mouth; the lips closed around it, as if it were a pipe, and the whole apparatus is ready. When the cock is open, the patient should be shown that the chief point is to produce by the expiration of breath, a loud noise in the cock, to draw deep breaths, and to pay no attention to breathing through the nose. Every one can easily satisfy himself that, in order to blow hard in a tube, he must first draw in a full breath, and also that in so doing he omits nasal breathing, especially when distinctly directed to do so. This technique is so simple that most persons acquire it in the first sitting, and children three years old have learned it without trouble. Of course, there are stupid people who can never learn anything; no other method would be more possible for them. Such, however, form a very small percentage. He has from one to ten kettles a day used, and is so pleased with the results that he will never give up the use of compressed air. Hundreds of patients, who replied to his advice for lung gymnastics, that they had used them a long time without any result, have been soon delighted with the marked results of his method.

The action of this compressed-air treatment is a manifold one. The first consists in the air streaming into the lungs with greater or less pressure, until they are distended to the alveoli, whereby atelectatic places, which foster catarrh and suppurations, and diminish the quantity of oxygen to be inhaled, are again brought into communication with the air, and given a chance to heal. Still more important than this factor is the regulation of the faulty breathing rhythm, which is accomplished by the artificially-practised lung gymnastics.

This is confirmed in almost all cases of asthma and chlorosis. The asthmatic breathes either entirely, or in part, in a very irregular and insufficient manner, now too hastily, then forgetting to breathe, he must suddenly catch up again. He believes he cannot breathe at all when he climbs or coughs. The chlorotic

breathes in precisely the same way, always superficially, because her whole muscular system is too flabby, and she herself is too incapable of resistance to draw a proper breath.

They are both soon forced by Brügelmann's method of lung gymnastics to breathe deeper, and, above all, more regularly. The consequence is an increased use of oxygen, which, with the easier and more automatic breathing, makes an extraordinary improvement in a few days. So all these patients perform the gymnastics with greatest conscientiousness, and attain excellent results. It is specially good for an asthmatic to see other sufferers at the work. He makes every effort to copy them, counts the number of breaths which he requires to empty the kettle, and delights in their diminishing number. So he gradually lays aside his faulty breathing, and is greatly benefited.

But the diagnostic value of the apparatus in the behavior of the pulse is also very great, if it is required to determine the existence of asthma. In that case the breathing at the apparatus is much more difficult then, and in severe cases quite impossible. Then the cure of the spasm must be sought, even if a morphine injection has to be resorted to. The spasm over, the asthmatic soon learns to breathe properly.

Brügelmann reports the cases of two chlorotics who were very much benefited by the treatment. He holds that with deep breathing accomplished, every case of chlorosis will vanish under reasonable guidance.

Emphysema is most favorably affected by the treatment with rarefied air. The mouthpiece is also indispensable for exhalations in rarefied air.

But if the rarefied air is used *lege artis* and the exhalations assisted, as much as possible, by means of pressure from skilled persons, then at the pneumotometer better breathing is soon shown, and becomes of respectable duration.

The compressed air, which has been passed through a flask of carbolic acid or eucalyptus or creolin solution, acts well upon chronic bronchial catarrh. The tough mucus adhering to the bronchioles is mechanically removed. The mucous membrane, brought again in contact with disinfected air, heals. If the sitting is followed by an inhalation of chloride of ammonium, the most favorable result is obtained.

In pleuritic affections not of too long standing, the compressed air, step by step, increases the air-holding territory in the chest, and the adhesions are either torn asunder or so loosened that the breathing is much extended.

For valvular defects, not too far advanced, the intrathoracic pressure secures a mechanical lessening of the hypertrophied heart-muscle, and this relieves the difficulty.

He has often seen œdema improve and disappear; appetite, sleep, and the secretion of urine improve, and he regards the pneumatic treatment as very valuable as an aid in the treatment of valvular defects.

No bad results ever occur, save a slight faintness, which results when the vessels are not filled full, from the temporary change in the pressure in the lesser circulation.

Brügelmann finds in his experience that the pneumatic treatment is contraindicated in most cases of tuberculosis. He has certainly seen such patients, after a short use of the compressed air, have metastatic foci appear in other parts of the lungs, a danger which can never be foreseen in ordering the method. The hard breathing sends tubercular particles along in the air, and they become attached to other places, where they cause new inflammations.

THE TREATMENT OF ATROPINE-POISONING BY PILOCARPINE.

CORTIS, of North Sydney, Australia, reports the case of a child, aged 18 months, who had drunk from a two-ounce bottle containing a solution of four grains of atropine sulphate and six grains of cocaine. It was seen one hour and forty-five minutes after the ingestion of the poison. ¼ grain of pilocarpine was injected subcutaneously. Half an hour later the pulse had improved, and the pupils were not so dilated. An hour and fifteen minutes after this, or three hours and a half after the ingestion of the poison, the dose of pilocarpine was repeated, and a little whiskey was given. The child immediately began to improve, and in less than three hours tried to drink a little milk. Twelve hours after the accident the child was lively and excitable, slept little during the night, and tried to vomit occasionally, but in in the morning, except for great weakness, seemed entirely well.—*Australian Medical Gazette*, February 15, 1892.

STRYCHNINE IN SNAKE-BITE.

The readers of the THERAPEUTIC GAZETTE have already had placed before them the results obtained by practitioners in Australia by

the employment of strychnine in the treatment of snake-bite. This method has been particularly advocated by Mueller, of Yackandandah, Victoria.

In the *Australian Medical Gazette* for February 15, 1892, this writer advocates this method of treatment against some attacks which have been made upon it, and gives rules which should be followed in order to get the best results.

The antidote should in every case be continued at short intervals of time, in fairly large doses, until its independent physiological action is unmistakably established, and its use should be promptly resumed if the symptoms of snake-bite-poisoning again manifest themselves.

In the same number of the *Australian Medical Gazette*, McDONNELL reports a case of snake-bite followed by intestinal hemorrhage and death, which was treated with strychnine without effect, but states that in two other cases in which he employed strychnine the results were satisfactory.

PURSA, of Sydney, also reports a case of death from snake-bite in which small doses of strychnine were given, the case ending in death. The amount of strychnine which was used was very small, and in a foot-note to the article, by the editor of the *Australian Medical Gazette*, regret is expressed that the opportunity for inquiry into the appearance of tissues under the microscope in cases of death from snake-venom was not taken advantage of at the post-mortem examination.

MYXŒDEMA SUCCESSFULLY TREATED BY MASSAGE AND HYPODERMIC INJECTIONS OF THE THYROID GLAND OF A SHEEP.

DR. WALLACE BEATTY, of Dublin, reports the following case in the *British Medical Journal*, which is particularly interesting because of the relation of the thyroid gland to myxœdema.

On October 7, 1891, a married lady, aged 45, the mother of several children, came to consult me. I had heard a few days previously from a friend of hers that her ill-health had existed for about five or six years, and that the symptoms had been steadily progressing. Naturally an active, bright, sweet-tempered woman, quick in articulation, and possessed of an excellent memory, she had become gradually more and more easily tired, and suffered from lassitude; her speech became slow; her memory impaired; her temper irritable and easily ruffled by trivial causes; she found walking difficult; constipation, which had always been a trouble, became more so; and she suffered much from cold.

On examination of the patient, it was quite clear that she was suffering from myxœdema. Her face was swollen, waxy-looking, and anæmic; there was a well-marked and circumscribed pink flush on her cheeks, contrasting markedly with the pale, swollen skin of the rest of the face. The eyelids were swollen and looked œdematous. The alæ nasi were thickened and the nose broadened. The lips were thickened, and the tongue seemed too large for her mouth, and evidently interfered somewhat with articulation. The mucous membrane of the oral cavity had a pale, swollen appearance. The hands were enlarged and clumsy; her rings, which at one time had been loose, were now too tight for her finger, and could not be removed. The feet were enlarged; the skin of the feet and legs seemed thickened, and there was some œdema present. No trace of the thyroid gland could be made out. There was no fulness above the outer half of each clavicle, such as is often present in myxœdema. Her heart-sounds were normal; the pulse was slow and feeble. The urine was free from albumin and sugar. Her hair had become thin. Menstruation had become irregular, having occurred only three times since October, 1890, the last period having come about a week before I saw her. The account she gave of herself was very much the same as that given to me by her friends. She told me that she had taken various tonics, and had been at Homburg, where she had taken steel "both inside and outside."

I need scarcely say that I could not hold out much hope that any treatment would succeed; still, as I had read that some cases of myxœdema were fairly curable by massage, I suggested that a consultation should be held with a view to the consideration of this treatment. Dr. Head was asked to see her. He confirmed my diagnosis, and considered that a thorough course of massage ought to be tried. Accordingly, on October 21, she went into a private hospital, and treatment was commenced. On October 24 I asked Dr. Purser to see her and to examine her blood. He agreed with Dr. Head and myself that there could be no doubt as to the nature of the case. He examined her blood, and found the percentage of hæmoglobin to be seventy per cent. of the normal. Dr.

Head, Dr. Purser, and I, about this time, discussed the advisability of adopting the treatment which had been used by Dr. George R. Murray, of Newcastle-on-Tyne, with considerable success,—namely, the hypodermic injection of an extract of the thyroid gland of a sheep. We decided to pursue the treatment by massage alone for five or six weeks, and then, if no decided improvement had taken place in her condition, to adopt Dr. Murray's treatment.

Dr. Purser made a second examination of the blood on November 27,—that is, five weeks after his first examination. He found the percentage of hæmoglobin to be seventy-five. In the second week of December there was no doubt that an improvement had taken place in the patient's condition,—the face was less swollen, the hands were somewhat less clumsy, the rings were looser, the pulse had improved; menstruation had occurred twice since her admission to the hospital (on November 18 and on December 7), and was natural in its character. The masseuse, who had found great difficulty in pinching up the thickened skin at the commencement of the treatment, had no longer this difficulty to deal with, at least, to the same extent. Still the improvement was not sufficient to lead us to hope that a prolonged course of massage would effect even a partial cure. Accordingly, we determined, while continuing the massage treatment, to give hypodermic injections of a sheep's thyroid gland. Dr. Purser kindly made the first extract for me, and gave the first injection; this was given on December 11,—that is, on the fifty-first day of the massage treatment. The extract was made according to the modifications. The method adopted was as follows:

The lobes of the thyroid gland of a sheep were removed immediately after it was killed, the instrument used having been rendered aseptic. The surrounding fat and connective tissue were then removed from the lobes. Each lobe was cut up into small pieces on a glass dish, the glass dish having been previously washed with a 1 in 20 solution of carbolic acid. The pieces were put into two sterilized test-tubes, one for each gland, and over them was poured, in sufficient quantity to cover them, a solution containing a one-half per cent. solution of carbolic acid and glycerin in equal part. The test-tubes were left in a cool place for twenty-four hours. The contents were then strained through fine muslin into a glass-stoppered bottle, and the muslin squeezed so as to express as much liquid as possible; the muslin was previously placed for a few minutes in boiling distilled water, and the bottle was also previously disinfected.

The extract so prepared from the two lobes of one thyroid gland was given in three parts, with two days' interval between. The patient experienced no unpleasant sensations. I have continued the injections, and have given, up to the present (February 13, 1892), the extracts of five thyroid glands. Each extract I have given in three separate injections within a week after its preparation. The time between the administration of each set of injections varied from four to ten days.

The effect of the injections has been really marvellous. A marked improvement in the patient's condition was noticeable within one week, so much so that her husband, who saw her on December 15, for the first time since her admission to the hospital, was delighted with the change in his wife's condition. He told me that he could not have believed the change possible. She left the hospital on December 16 and returned home. Massage was continued for seven weeks longer, the patient, however, being permitted to go about the house, and to take short walks daily out of doors.

The improvement has steadily progressed. Now she is practically cured; the face looks natural; the skin of the face is now no longer swollen; the lips are natural; the tongue is natural size; speech is rapid and easy; the hands are no longer clumsy; she can give a hearty and firm "shake-hands;" her rings are loose and easily removable; her movements are active; her hair, which had become thin, is now growing thickly; her memory has returned; menstruation is natural. No physician, seeing her now for the first time, could recognize the case as one of myxœdema.

HYPODERMIC MEDICATION FOR CHILDREN.

In the *Journal de Médecine et de Chirurgie* for February 25, 1892, is an article by LEGROUX, in which the subject of hypodermic medication in children is considered. After stating that hypodermic injections of medicines in children produce so much pain and irritation as to be contraindicated, unless there are abundant reasons for their employment, he endeavors to outline the conditions which permit of their use. Thus they may be administered in this way when giving drugs

by the mouth is impossible because of gastric irritability, or when the patient cannot swallow pills or capsules. This is particularly the case with the salts of quinine. This method of medication is also permissible when the immediate action of the drug is required, and where absorption through the alimentary canal would be delayed, as in the instance of ergot and caffeine, and, where it is necessary to produce a stimulating or quieting influence very rapidly, it may be necessary to give injections of ether or morphine, of cocaine or of antipyrin. Under these circumstances, Legroux believes that the subcutaneous employment of the drug is indispensable. Of the medicaments which cannot be borne by the stomach, it is thought that creosote in large doses may be given, in a suitable vehicle, into the cellular tissues without difficulty. It is hardly necessary to add that all injections should be practised under the strictest aseptic rules, and that the needle and syringe should be thoroughly sterilized before they are employed. The liquid to be injected should be prepared with the greatest care with distilled water which has been boiled. Pure medicaments only should be used, and the dose should be accurately measured, for after its introduction it is impossible to limit its effects.

The author recognizes, however, the difficulty which is experienced on the part of the physician because of the opposition offered by the parents even to this simple operation of puncturing the skin.

Of the medicaments which he thinks it is suitable to inject hypodermically, are hydrochlorate of quinine, caffeine, ergot, ether, morphine, cocaine, antipyrin, and creosote; or, in other words, all drugs which are capable of being readily absorbed into the blood from the tissues. The hydrochlorate of quinine is used for the prompt relief of fever, in the dose of 4 grains, which, when introduced under the skin, is equal to a dose of 8 grains given by the mouth. The formula which Legroux habitually employs is as follows:

℞ Hydrochlorate of quinine (acid), gr. xv;
Distilled water, ʒi.

An ordinary hypodermic syringe, under these circumstances, holding about a cubic centimetre, gives a dose of from 4 to 6 grains.

In the broncho-pneumonia and pneumonia of infants, Legroux finds this injection useful for the reduction of the temperature, and repeats it two or three times, according to the age, in the course of the same day, if necessary, to obtain the effects desired. In intermittent fever the injections may be given, in the dose of from 4 to 8 grains just before the onset of the paroxysm, when it will be found to actively combat the malarial tendency.

Concerning ergot, it is stated that a solution of this drug, according to the formula of Yvon, or the ergotinine of Tanret, has rendered him signal service in the treatment of cases of acute nephritis with hæmaturia; also in the hæmaturia following the use of blisters, an accident which is by no means rare in infants when these counter-irritants are employed. After the use of the ergot for from twenty-four to seventy-two hours, the hemorrhage and consecutive albuminuria both cease. In scarlatinal nephritis he has observed from these medications a marked decrease in the albuminuria, if he has ordered at the same time a milk diet, and a mustard-plaster over the loins. He employs 5 drops of the ergotinine of Tanret, injected into the lumbar region, which corresponds to about 15 grains of crude ergot. He also employs these injections in cases of passive congestion of the lungs, and in others where the process of resolution goes on slowly. Ergot is also useful in his hands in prolapse of the rectum, in nocturnal incontinence of urine, and in insufficiency of the sphincter ani. He injects 15 minims of a solution of ergot, or, in preference, 4 or 5 drops of ergotinine, into the ischio-rectal fossa and into the fibres of the sphincter, and states that he obtains permanent relief.

The hypodermic injection of ether has certain definite indications. In collapse, in adynamia, and similar states, ether injections are valuable, but are only to be used when the condition is a pressing one, and with special precautions, as they are very apt to produce stiffening of the muscles and gangrenous spots on the skin, which are slow to heal. A half-syringeful is sufficient to obtain the excito-stimulant effect required.

The pain produced by the injection is very severe, particularly if the injection be a superficial one.

Caffeine, in solution with the benzoate of sodium, according to the formula of Tanret, is of great value in the treatment of infectious diseases, injected in the dose of 4 grains two or three times a day, when there is a tendency to failure of the heart and inactivity of the kidneys. The hypodermic injections of narcotics, such as morphine and atropine, are dangerous in children, and ought very rarely

to be employed. Whenever employed for the relief of exceedingly severe pain or violent dyspnœa in children, of from 4 to 10 years of age, $\frac{1}{16}$ to $\frac{1}{12}$ grain should be given.

Antipyrin may be given hypodermically only when persistent vomiting is present, and when severe pain must be relieved. In these cases 4 to 8 grains are sufficient.

The hypodermic injection of cocaine in children is to be performed with the greatest prudence. Legroux has not had an occasion in which to employ it.

In regard to the injection of creosote, he has frequently had occasion to use it hypodermically for the cure of pulmonary tuberculosis, and also for the general antiseptic effect which he thinks it exerts in diphtheria, to prevent the secondary broncho-pneumonia produced by streptococcus. The injections of creosote are given in antiseptic oil, which is prepared by adding six drachms of creosote to a pint and a half of olive oil. The dose of this is from ½ to 1 teaspoonful, being given in increasing doses. He states that these injections are attended with little pain. The results, so far as tuberculosis is concerned, are most useful.

Legroux then refers to the results obtained by Dupré by the use of creosote in diphtheria, which that author recorded in 1888. Dupré thought these injections had an antifebrile effect, and very rarely did any disagreeable symptoms follow their administration. In the space of two months he systematically employed creosote internally, or injections of creosote, with thirty recoveries. Of the sixty-eight sick children, forty-four had tracheotomy performed, with fourteen recoveries. He therefore thinks this treatment is exceedingly useful.

Finally, Legroux concludes his article by referring to the extraordinary results obtained by Richet in two cases of tuberculous meningitis from the injection of the serum derived from the blood of the dog.

PROPHYLAXIS OF PUERPERAL DISEASES.

Of late there are two special points discussed by the obstetrician, as to the question of prophylactic disinfection, and the placing a limit upon the number of internal examinations of the woman in labor. Dr. Frommel reports his observations made in the Erlangen clinic (*Deutsche Med. Wochenschrift*, March 10, 1892).

From April 1, 1887, until November 15, 1890, there were five hundred and fifty-nine women delivered. In all cases the preparation of these patients was that each, when possible, received a full bath, and was put in clean clothing and laid upon the bed. Here the exterior genitals and their surroundings were most carefully washed with soap and water, and then disinfected with a solution of corrosive sublimate (1 to 2000). Then the vagina was disinfected with the same solution. The latter disinfection was only done in the first years by washing out the vagina, later by inserting two fingers with the tube of the vaginal douche while washing out the vagina and cervix. When labor lasted a long time, or there were numerous examinations made by students and nurses, this procedure was once or twice repeated.

Of the five hundred and fifty-nine women treated in the above manner, only five died in confinement. One, after a confinement without fever, died upon first getting up, on the eighth day, of embolism of the pulmonary artery, proceeding from a non-infectious thrombosis of the vein of the left leg. The second succumbed to a double croupous pneumonia; a third died after some weeks in consequence of an immense carcinoma of the vulva, which could not be operated on; the fourth died two hours after delivery, after the placenta had been manually removed on account of numerous fibroids found in the uterus. Section showed that, without injury to the uterus, a large vessel had burst in the left broad ligament, causing a considerable hemorrhage into the peritoneal cavity between the folds of the broad ligament. The fifth death was a result of infection. This woman had fever when she entered in the eighth month of her pregnancy, with an enormous hypertrophy of the cervix and an entire inversion of the vagina, which was covered with discolored bedsores. She was soon in labor. The dilating period was quite long, and the temperature rose constantly. Finally, the woman was delivered with instruments without special difficulty, but it was impossible to cope successfully with the infection; on the fifth day she died in consequence of it. The infection could not fairly be charged to the hospital, as she had fever when she arrived.

During this time the general morbidity varied from five and a half to seven and a half per cent., under this head being reckoned all cases in which the puerperal temperature rose above 100.50°. The number of examinations of patients in labor frequently reached as high as sixty or seventy.

These favorable results tempted to the dis-

use of the prophylactic disinfection of the vagina from November 15, 1890. In every other respect the same precautions were taken as before. About the first hundred cases were passed without any bad results; at most only a slight increase of morbidity. Then a woman was admitted who had already been examined by a midwife. While in labor eight separate examinations were made, after which followed a spontaneous and short delivery. On the second day after, she developed fever, and died on the fourth day of septic peritonitis. Two other such cases occurred with intervals of several months. In all the cases the streptococcus pyogenes aureus was proved to be the infecting agent. Morbidity at this time, 11.1 per cent. The old method was returned to after these alarming results. In obstetric clinics the internal examinations must be practised. Where else shall the future physician obtain any knowledge of these things? If the student has examined once in the dilating period and once after the rupture of the membranes, and once to follow the rotation of the head in normal births, that is certainly enough. Along with the knowledge thus obtained, the student should carry away with him a strong sense of the value of antiseptics in obstetrics.

SPASM OF THE RETINAL VESSELS AND ITS TREATMENT.

GALEZOWSKI (*Recueil d'Ophthalmologie*, February, 1892), after referring to the action of anectesine, and describing the ophthalmoscopic appearances which may be present in certain types of ophthalmic migraine, refers to several observations of spasm of the retinal arteries, and the effect upon vision which he has seen occur during the present epidemic of influenza.

In one observation, a man, 46 years of age, with the symptoms of influenza, recovered after the use of quinine. Later he experienced a sudden difficulty of vision, headache, vertigo, photopsies, and passing obscurations, with scotomas of blue and yellow clouds. These symptoms recurred two or three times a day. The retinas showed a slight serous peri-papillar suffusion, especially on the left side, and the arteries near the papilla were invisible in places. The visual acuteness was reduced to one-tenth, and the field of vision diminished two-thirds in all directions. The patient was given the following treatment: Quinine, in doses of 30 to 60 centigrammes a day, and instillations into the eye of the following collyrium: Caffeine, 1 gramme; distilled water, 10 grammes; benzoate of soda, enough to dissolve. Under the influence of this treatment the morbid phenomena disappeared, and sight was completely re-established at the end of six weeks. Galezowski believes that instillations of a strong solution of caffeine has a distinct regulating influence upon the retinal circulation.

In another observation, a woman, aged 35, presented herself with a contracted field of vision, and the ophthalmoscopic appearances of a serous suffusion along an arterial branch. The observer concluded that the area in which the field of vision was absent corresponded to a portion of the retina supplied by an artery which had become contracted. The whole difficulty was referred to an attack of influenza. Sixty centigrammes of bromo-hydrate of quinine were given daily for ten days, and every other day instillations of atropine and pilocarpine drops alternately, together with steam douches for the eye. At the end of a month there was sensible improvement and the visual field returned in great part.

Galezowski, in reviewing his cases of spasmodic contraction in the retinal arteries, and the influence which this condition has upon vision, draws the following conclusions: The retinal vessels may, under the influence of central or constitutional affections, epidemics, etc., undergo spasmodic contraction. This leads to a lack of circulation and to disturbance of vision proportionate to the degree and shape of the alteration in the vessels.

LATENT EMPYEMA OF THE HIGHMORE ANTRUM.

In an interesting paper in the *Annales des Maladies de l'Oreille*, etc., for February 9, DR. DICHTWITZ, of Bordeaux, cites his results in the systematic search for fluid collections in the antrum, and the concurrent observations of Ziem and others. This affection, which, until recent years, was regarded as a rarity, has proven rather common to those who are keenly on the lookout for it, and cases are being published on every hand; yet the diagnostic guides to its recognition are far from sure, and this contribution, in laying stress upon its latent occurrence upon one side in unsuspected cases, and its presence with few or no symptoms on the second side, in others, will probably do much to increase the frequency of its recognition. Unilateral muco-purulent discharge from the nose has

long been regarded as strongly suggestive of empyema of one of the sinuses subsidiary to the nares; opacity of one side of the face when illuminated by an electric light within the mouth (one of the methods of study advocated eight or ten years ago by the late Addinell Hewson, but only more recently coming into vogue) is often an aid to diagnosis, and aspiration has been satisfactorily used; but the exploratory and therapeutic measure of irrigation in the suspected cases will probably aid much oftener the search for these conditions. A small trocar and canula can be introduced from the inferior or middle nasal meatus, often with no noteworthy pain, and through it a warm, bland aseptic freely employed in the antrum, with confidence that no harm will result in the negative cases, and that in many where symptoms of empyema were vague or lacking, diagnosis and therapeusis will be simultaneously served by the procedure. Although a dental caries is not infrequently the cause of trouble and calls for the extraction of the tooth, opening the way conveniently for exploration through its socket, there are many instances where it is not clear that a tooth ought to be sacrificed, or that drainage into the oral cavity will be as rational or as thorough as into the nasal. This point of the bilateral occurrence of the lesion gives increased probability of a nasal rather than a dental origin. That the matter should be fully understood demands some simple and harmless method of exploration, which may be systematically employed in all cases presenting any probability of empyema. Puncture with a fine canula seems to offer such a method, and the question then hangs upon the best point of entrance for diagnostic and therapeutic purposes. The natural passage can rarely be made serviceable; but a nasal opening has strong theoretical and practical advantages, since the numerous variations in the size and limits of the antrum count for least on its nasal aspect. Ziem has made almost all of his four hundred and fifty-three punctures from the alveolar border, but Lichtwitz, like Bayer, Hartmann, and others, has opened from the nose in one hundred and eleven instances. He claims also a diagnostic superiority for antiseptic irrigation over aspiration, and that in several of the sixty-eight cases, where he found no pus, notable improvement, nevertheless, resulted. The simpler and less formidable the exploration, the oftener will it be employed, of course; and it is extremely significant that, while the empyema has been found double in less than eight per cent. by eight other observers (*i.e.*, seventeen among two hundred and nineteen cases), that Ziem has met it on both sides in thirty-two per cent. (forty-one among one hundred and twenty-seven), Kaufmann in thirty-six per cent. (thirteen among thirty-six), and Lichtwitz in twelve among thirty-one patients, or nearly forty per cent., results that accord better with Gradenigo's findings of six double among nineteen empyema cases in one hundred and three cadavers.

SYRINGING IN EAR-DISEASES.

In the *Centralblatt für die Gesammte Therapie* of March, BING gives a very good statement of the use of the syringe, justly insisting, more strongly than is at all usual, that it is far from a simple matter that can be done anyhow and by anybody. The frequency of its employment in a wide series of cases is well shown, although he gives less credit to the measure of the dry cleansing by mopping out the canal with the absorbent cotton than an acquaintance with appropriate instruments would demand. He naturally prefers a pellet of cotton held in the forceps as less clumsy than many of the "corkscrew-like" applicators figured in the books; but any one who has employed the Harrison Allen cotton-carrier must marvel at his ideal of dry cleansing. Reiterating the claim that the syringe is the only proper instrument for the removal of wax masses and foreign bodies by the non-specialist, and that it is frequently essential as a cleansing agent in the suppurating inflammations, he might have laid more stress upon it as a means of employing heat in combating pain and inflammatory processes in the earlier stages.

Holding its action to be largely mechanical, he inclines to deprecate the use of most of the usual antiseptic solutions, except as irrigations after operation, as futile in any unirritating strength, and points to the common instances where pain and exacerbation of trouble followed syringing with creolin and other drugs not uniformly diluted. The extremely important point of the temperature of the fluid is unfortunately incorrectly given, for 26° to 28°, even if Réaumur is meant (90° to 95° F.), is usually not warm enough. The efficacy of the fluid for the removal of cerumen masses, but especially for combating the inflammatory process underlying a suppuration, is greatly increased by raising it to the uppermost limit of tolerance. Why he accuses syringing of harm-doing in early acute

stages is not far to seek. The employment of the syringe, with the aid of good illumination by the forehead mirror, with the auditory canal drawn as straight by traction, up and back and with the nozzle resting against the inner side of the tragus (or, better, on the thumb which holds this forward), serves in the majority of cases; but it must be supplemented at times by the use of a long, fine canula passed through a stenosed part of the canal or into a perforation, especially in the flaccid membrane. For this he prefers the long flexible catheter of Weber-Liel attached to the ordinary syringe, or a fine, stiff canula connected by a long tube to the syringe which he commits to the hands of the patient. He puts great trust in the solvent and disintegrating action of sodium carbonate solution, and makes no mention of the generally superior peroxide of hydrogen; but, as he instils it for days together at times, promptness of effect seems little regarded.

Good directions are given as to vessels for catching the fluid as it emerges from the ear; but the simple measure of carrying with the syringe an appropriate metal cup arranged to hang from the ear, and need no holding by patient or surgeon, does not seem to have been considered. Whatever is employed must be in position to catch the fluid even when returning forcibly, yet pressed close against the neck, to let none leak past there, and must be out of the way of the syringe.

The accurate direction of the stream to the point of most efficient action, the avoidance of undue pressure upon the delicate, sensitive deeper structures, and the vigilance as to vertigo and faintness which may follow this oftener than other manipulations in the ear, all receive the consideration which they deserve, but do not always get; and he rightly insists that the ear is to be well dried afterwards with absorbent cotton, and a flake inserted for some hours in the outer part of the canal.

There is little superfluous or erroneous in the seven pages of his paper, and it is greatly to be wished that other teachers would be as careful and precise in their directions as to this very important and much used and abused aural measure.

VASELINE IN GONORRHŒAL CONJUNCTIVITIS.

Dr. F. M. Wilson (*Transactions of the American Ophthalmological Society*, 1891) recommends the liberal use of vaseline within the conjunctival cul-de-sac in gonorrhœal ophthalmia. In many of his cases vaseline was used so freely that it might be said that the eyes were washed with it, and in all of the cases so much of the pus came out with the vaseline that much less of the watery solution was used. Vaseline acts as a protective application, and from a theoretical stand-point it seems rational that a conjunctival membrane covered with vaseline is less exposed to irritating pus than one without it. The protection, however, is not sufficient, and hence Wilson urges that the use of vaseline is not a mode of treatment by itself. He uses iced clothes, nitrate of silver, bichloride of mercury, and Panas's fluid to lessen the formation of pus. Vaseline is employed to mitigate the irritation of the pus after it has formed, and it can be used with any kind of treatment. There are no contraindications.

ON THE OPERATIVE TREATMENT OF DIVERGENT STRABISMUS.

Dr. Emil Grüening (*Transactions of the American Ophthalmological Society*, 1891), excluding the various forms of periodic divergence, and all forms of divergence known as secondary, paretic and paralytic, operates as follows: Both recti externi are operated upon at one sitting. In cases of divergence of not more than two millimetres, the tendons are divided at their points of insertion. Whenever the deviation measures more than two millimetres, the tendons are divided at a distance from their insertions, the distance corresponding to the degree of squint. Thus, in a case of divergence, where the measurement by the corneal reflex, according to Hirschberg, shows a deviation of five millimetres, both tendons are divided at that distance from their points of insertion. The tendinous stumps are not removed. The conjunctival wounds are closed by a few interrupted sutures placed horizontally. A silk thread is passed through the conjunctiva over both interni muscles in a line with the horizontal meridian of the cornea, and tied over a pledget of cotton on the bridge of the nose. The eyes are thus coupled in a position of strong convergence, which is maintained twenty-four hours. A binocular bandage may be applied; it relieves the discomfort caused by the suture.

NAPHTHOL IN DACRYOCYSTITIS.

Unna (*La Pratique Médicale*) advocates the use of naphthol in dacryocystitis and

blennorrhœa. He advises the following formula:

Naphthol-beta, .50 gramme;
Alcohol, q.s. to dissolve;
Glycerin, 22 grammes;
Water, 250 grammes.

The naphthol must be dissolved in the alcohol, the glycerin added, the whole poured into the water and then shaken.—*Recueil d'Ophthalmologie*, March, 1892.

CONCERNING THE TRANSPLANTATION OF SKIN AND MUCOUS MEMBRANE IN THE OPERATION FOR TRICHIASIS.

E. FRANKE (*Centralblatt f. Praktische Augenheilkunde*, February, 1892), referring to the various operations which have been practised for trichiasis, gives some directions in regard to the transplantation of skin and mucous membrane.

Pieces of skin may be utilized according to the Thiersch-Eversbusch method. The graft, taken from the upper arm with a razor, is a thin strip, including only the horny layer, or, at most, the top of the papillary layer, is transferred to the intermarginal wound, which has been made according to one or other of the methods now in vogue for transplanting the ciliary border. It is unnecessary to insert sutures to hold the flap in place. It is also needless to place the graft in a saline solution in order to prepare it. Any trimming that is necessary may be done with sharp scissors after it has been placed in position. Putting the flap in a saline solution complicates the operation, and is likely to encourage curling of the tissue.

When Franke utilizes mucous membrane in his transplantation operation, he cuts around a piece from the under lip, the ends of which are pointed, the whole exceeding by several millimetres in length and breadth the surface which is to be covered. The piece is then removed with forceps and scissors, and while the wound in the mucous membrane is being stitched together, the flap is placed in sterilized physiological salt solution, or a one per cent. soda solution. It is unnecessary to put the flap in a solution having a certain temperature,—about 37° C.,—or to place the flap upon a warmed porcelain plate, as has often been advised. A lotion of the same temperature as the room is quite sufficient. When the wound in the lip has been attended to, the excised piece of mucous membrane is smoothed out upon the surface of the wound and the submucous fat removed. No difficulty is experienced in doing this, inasmuch as the pieces are thicker than those composed of skin, and do not roll together. The piece is then placed in the intermarginal wound, which, in the mean time, has ceased to bleed. Franke does not employ sutures to secure fixation. Pieces of mucous membrane of four to five millimetres in breadth, as a rule, shrink about one-half, and even still more. During the operation a sterilized sodium chloride solution is utilized for cleansing purposes, although sometimes a weak sublimate solution, 1 to 10,000, is employed. A simple antiseptic bandage of sterilized gauze is used for dressing. Franke has always employed iodoform gauze, and has never had any bad results. He allows the bandage to remain for five days.

IMMOVABLE OCULAR BANDAGES.

In the Société d'Ophthalmologie de Paris, February, 1892, VACHER (*Recueil d'Ophthalmologie*, March, 1892) urged the importance, especially after delicate operations, of maintaining the dressings exactly, and preventing the movements of the patients from disarranging the bandages. In certain serious cases he pointed out how indispensable it was to isolate an eye attacked by a contagious disease, and to preserve the other from any septic germs. After having tried a certain number of modes of occlusion, he was impressed with the value of a collodion dressing. It consists in fastening the ocular bandages, whatever their nature, with a washer of flexible gauze or muslin maintained in its circumference by a layer of collodion. In order to detach the washer, it is necessary to moisten it with ether or alcohol, which dissolves the collodion and allows the dressing to be removed without pain and without pulling.

OLD IRITIS AND IRIDECTOMY.

DR. A. PUECH (*Recueil d'Ophthalmologie*, March, 1892) summarizes his views as follows: The true object of iridectomy in cases of iritis being the avoidance of accidents depending on adhesions when these become the starting-point of irritations, or when they create a real danger to the nutrition of the eye, the propriety of applying the operation of iridectomy to all irides more or less bound down by synechiæ when the eye possesses sufficient vision, and its nutrition does not seem to be compromised, is considered ques-

tionable. Iritis, being for the most part a diathetic irritation, is subject to all sorts of fluctuation, which a mechanical intervention could not tend entirely to modify. The benefits of iridectomy in cases of old iritis, with sufficient vision, is often questionable, in consequence of the disturbances of vision that the operation may cause.

EPISCLERITIS.

DR. ARTHUR D. MANSFIELD (*Medical and Surgical Reporter*, March 19, 1892) gives the experience of the Presbyterian Eye, Ear, and Throat Charity Hospital, in Baltimore, in the treatment of this disease, as follows: "We have tried the galvano-cautery with varying results. Sometimes we have thought good followed; at other times the results have been very indifferent. Astringents externally give very little benefit. Massage has been found to do the most good, accompanied by the internal administration of antirheumatic treatment, such as the salicylates, alkaline treatment, salicylate of quinine, and potassium iodide. Our results with massage and a salve composed of the yellow oxide of mercury, three grains to the drachm of lanolin or vaseline, have been very gratifying." The massage is employed twice daily,—morning and evening,—unless too great reaction is produced, when it is used only in the evening and just before retiring. Antirheumatic measures are considered essential.

METHYL-VIOLET IN OPHTHALMIC PRACTICE.

DR. F. B. TIFFANY (*Journal of the American Medical Association*, March 19, 1892) gives his experience with some cases treated by methyl-violet. The first was a case of stubborn phlyctenular keratitis associated with pustular eczema of the face. Methyl-violet (1 to 1000) was dropped into the eyes, and on gauze used as a mask over the face. Inasmuch as the cloth adhered to the sore surfaces, an ointment of methyl-violet was substituted (1 to 1000). In less than a week from the time the methyl-violet was used, both eyes would tolerate light, and the corneæ were found to be clearing rapidly.

In the second case, a tumor, situated just back of the cornea, at the superior and outer part, which was diagnosticated as sarcoma, and which had arisen as the result of an injury eight years previous to the patient's application for treatment, was subjected to injections of the methyl-violet solution, 1 to 1000. The solution was also dropped into the eye. At the last examination the ciliary injection was less marked, the tumor reduced one-third, and a slight retinal reflex visible. More than a month later the eye continued to be in a satisfactory condition.

The third case was a child, aged 6, who four weeks previously had injured the lower and inner third of the eye in the ciliary region with the tine of a fork. Examination revealed a fleshy-looking body arising from the inferior ciliary region crossed by blood-vessels, and which was diagnosticated as glioma and enucleation advised. Consent was not obtained, and the use of methyl-violet was begun. It was dropped into the eye, and relieved the soreness, and was also given as a lotion, to be used at home. Under its influence it is stated that the pain and soreness have been lessened, and that the tumor seems to be smaller.

EXTIRPATION OF THE PALPEBRAL PORTION OF THE LACHRYMAL GLAND.

DE WECKER (abstract *Revue Générale d'Ophthalmologie*, February, 1892) reiterates his belief in the efficacy of ablation of the palpebral portion of the lachrymal gland for the cure of obstinate epiphora. The essential point of the operation, which he originally described three years ago, consists in drawing the gland well out and detaching it perfectly from all its connections, so as to isolate it, and removing it by several quick cuts of the scissors.

THE PATHOGENESIS AND TREATMENT OF THE LACHRYMAL PASSAGES.

GILLET DE GRANDMONT (abstract *Revue Générale d'Ophthalmologie*, February, 1892) recapitulates his ideas upon the pathogeny and treatment of disease of the lachrymal ducts. Diseases of the ducts depend exclusively, according to this author, upon the micro-organisms which penetrate into them, whether they come from the conjunctiva or from the nasal mucous membrane, and consequently probes can do nothing to cure the affection. The best measures are antiseptic irrigations, avoiding irritating liquids. Boric acid solution and boiled water will suffice. When the micro-organisms proceed from the conjunctival cul-de-sac, the latter should be sprinkled with aristol. When they proceed from the nose, the treat-

ment must extend to the nasal chambers. The constitution of the patient deserves attention, and should be strengthened by all suitable means, in order that the infecting area may resist the bacteria more effectually.

THE ANILINE DYES (PYOKTANIN OF STILLING) IN OCULAR THERAPEUTICS.

CORDONNIER (*Thèse de Doctorat.*, Paris, 1891) arrives at the following conclusions concerning the antiseptic power of aniline dyes: 1. Pure methyl-violet — that is, a preparation devoid of arsenic and of phenol —is not poisonous, and does not produce local troubles if the solution is not too concentrated. 2. The action of light readily decomposes the aniline solutions, hence they must be preserved in colored bottles and frequently renewed. Real pyoktanin must be employed, and not the violet dyes generally found in commerce. 3. Methyl-violet suspends the vitality of pathogenic microbes, but it does not kill them. 4. It acts favorably in simple conjunctivitis, in acute dacryocystitis, or that which has recently become chronic, but especially in affections of the cornea, provided the latter do not arise from hereditary syphilis. 5. It has no action in granular ophthalmia and in purulent ophthalmia. 6. In a certain number of cases iritis has appeared to be happily modified by the local use of pyoktanin. 7. Affections of the fundus of the eye do not seem to be influenced by the topical application of this substance.—*Revue Générale d'Ophthalmologie*, February, 1892.

THE TREATMENT OF LACHRYMAL FISTULA.

KATZAUROFF (*Wratsch*, No. 48, 1891), after incision of a fistula of the lachrymal sac and thorough washing out of the cavity, tampons with a bit of absorbent cotton moistened with ol. menth. piper., an oil which has antiseptic properties, and has been used with good results in ulcus serpens and exenteration of the eyeball. If the lachrymal canal is patulous and there is no affection of the bone, this completes the matter. If there is caries of the bone, the thermo-cautery is employed. The tampons remain in place from five to six days, the final healing being brought about by the use of iodoform.

If stricture is present, the lachrymal canal is dilated with a sound up to No. 6. If this does not answer the purpose, the canal is opened with Stilling's knife, and cotton soaked in peppermint oil passed in by means of a No. 1 sound. The sound is enveloped in the moistened cotton, passed in, and then withdrawn in such a manner that the cotton remains in the lachrymal sac and lachrymal canal. After five or six days' repetition, the canal is well dilated. Through the lower lachrymal canal (not through the fistulous opening) a silver canula is introduced of a size equal to a No. 6 sound. The lumen is equivalent to the diameter of a No. 2 Bowman's sound. The length of the canula is from thirty-five to forty-five millimetres. The short canulas are for strictures of the upper and middle portions; the longer ones for those of the lower third of the lachrymal canal. The upper curved end of the canula is not so hollow as the rest of it, but just above the entrance to the lumen terminates in a knob, which, when the instrument is in place, rests upon the anterior wall of the lachrymal sac. These canulas do not cause a great deal of inconvenience, as they need to be worn only for several weeks, at the end of which time cure may be expected.—*Klin. Monatsbl. f. Augenheilk.*, February, 1892.

THE USE OF GRAY SALVE AS A LOCAL MEDICAMENT IN PARENCHYMATOUS KERATITIS AND CORNEAL OPACITIES.

DR. J. MITVALSKY (*Centralblatt f. Praktische Augenheilkunde*, February, 1892) employs gray salve with the following preparation:

> Ung. hydrarg. ciner., gr. xv;
> Vaseline fl., ʒss;
> Lanolin, gr. xv.

This salve is non-irritating, about half-fluid, and readily spreads itself over the anterior portion of the eyeball. It can be rubbed in with the ordinary massage movements by means of the eyelids. Mitvalsky insists that the gray salve should be utilized in the absence of inflammatory symptoms. This method does not interfere with general medication, and with the continuous use of atropine, which, indeed, may be incorporated with the salve in the strength of one per cent. He concludes that the local use of mercury in the method described is a most excellent procedure, and highly recommends it in parenchymatous keratitis in the absence of inflammatory symptoms, and for the purpose of clearing up corneal opacities of all kinds.

THE TREATMENT OF CORNEAL ULCERS.

J. A. BACH (*Journal of the American Medical Association*, March 12, 1892) advocates the following treatment: Cleansing in all cases with any mild antiseptic solution, such as boracic acid or peroxide of hydrogen. Atropine is employed in nearly all cases because it relieves the spasm of the iris and the ciliary irritation, but in peripheral perforation eserine is safer, though at times attended with pain. In simple ulceration of the cornea a one per cent. solution of atropine, combined with the instillation of a ten per cent. solution of aristol in sweet oil, hot fomentations, and a bandage usually suffice to effect a cure. Should the ulceration persist, and spread in depth and width, it is advisable to resort to the galvano-cautery. If the ulcer is quite deep, and if perforation seems to be inevitable, it is best to anticipate this by paracentesis of the cornea. After any of the surgical means used in any given case, atropine and aristol should be continued in conjunction with hot fomentations and rest in bed.

ANTISEPSIS IN OPHTHALMOLOGY.

DIMISSAS (*Recueil d' Ophthalmologie*, March, 1892) recommends the following preparatory dressing of the field of operation: 1. Copious bathing with warm boric acid solution by means of a strong jet of the fluid, which removes all of the impurities contained under the folds of the conjunctiva, the caruncle, and the commissures. The lids should be separated with a blepharostat. 2. Instillations of warm solution of sublimate, 1 to 4000. The danger that sublimate solution may cause conjunctival irritation and opacity of the cornea is pointed out. 3. A dressing, composed of a mixture of salol, boric acid, iodoform, and salicylate of bismuth. Upon this is applied antiseptic cotton dipped in a solution of sublimate, 2 to 1000. The dressing must be removed in twenty-four hours. If the conjunctiva is dry, and there is no vascular injection, a second dressing is applied, and the latter must not be removed until the moment of operation. If there is a secretion, then the dressing must be repeated each day until an entirely satisfactory condition is obtained.

The instruments are placed in boiling water, then removed and allowed to cool, and afterwards put in absolute alcohol, and left there until the moment of the operation.

After the operation every trace of blood is removed, the parts are bathed with a sublimate solution (1 to 4000), a layer of the mixed powders is applied to the eyelids, over which is placed cotton dipped in a strong sublimate solution (1 to 2000), the whole being kept in place by several turns of an antiseptic roller composed of gauze moistened in the sublimate solution. Definite rules for removal of the dressing are not given, but other things being equal, forty-eight hours is considered the minimum length of time for it to remain, it being preferable, if possible, not to remove the dressing until the fourth day.

TREATMENT OF GRANULATIONS OF THE CONJUNCTIVA.

PERETTI, of Algeria, advocates a treatment which he has employed with constant success for five years: 1. Each night on retiring, the edges of the affected eyelids should be rubbed with an ointment of red precipitate. 2. The next morning the following collyrium should be applied: Liquor plumbi subacetatis and distilled water, equal parts. Several drops in each eye; then wash with salt water. 3. The following day dust into each eye with a brush a little of the following powder: Calomel, iris powder, and tannin, equal parts. Alternate every day successively these preparations. 4. If the granulations are old, hardened, and fleshy, it is advisable every two or three days, and before applying these preparations, to evert the eyelids and scrape the surfaces gently with the point of a blunt bistoury, having previously employed cocaine. —*Recueil d' Ophthalmologie*, March, 1892.

THE TREATMENT OF STERILITY.

SEELIGMANN (*Zeit. f. Therap.*, No. 4, 10 Jahr.) states that in nearly fifty per cent. of childless marriages the fault lies with the man.

The treatment appropriate to sterility when the fault lies with the woman has been many times gone over. Lately two methods have been suggested,—one gynæcological massage, and the other electrotherapy. Massage, if persisted in, not only may cause absorption of exudates dependent upon inflammation of the ovaries, tubes, or uterus, but may also place the organs in their normal position. The method of Shurebrandt will in many cases be attended by happy results.

The Apostoli method of electrotherapy frequently relieves the pain in perimetritis, so that after a very few applications of the faradic current, cohabitation, before painful, is not attended with suffering, and thus the conditions

for conception are much more favorable. The negative electrode of the constant current will often alleviate the lighter grades of endometritis, and overcome narrowing of the os. The electrode should be carried into the uterus. Since it has but slight irritating action, and since by its basic chemical action it renders the intrauterine soil favorable to the spermatozoa, in acid conditions of the utero-vaginal secretions the negative electrode is particularly indicated, together with vaginal injections of mild alkaline solution.

When sterility depends upon the man, the fault usually lies in azoospermism rather than in impotence or aspermatism. The absence of spermatozoa is commonly dependent upon a bilateral epididymitis. Azoospermism is in these cases due not so much to obliteration of the vas as to the profound disturbance of nutrition dependent upon the original inflammation. Thus, in many cases, a few small, feeble, or dead spermatozoa are observed in the semen, showing that there is not obliteration of the duct.

The treatment recommended for this condition is the application of ichthyol and the employment of continued compression. Ichthyol should be combined with massage, in order to increase the nutrition of the testicle and to hasten the absorption of inflammatory tissue. In cases thus treated the inflammatory nodules rapidly disappeared, and violent neuralgias, from which the patient suffered, were relieved.

POST-OPERATIVE STRANGULATION OF THE INTESTINES TREATED BY LAPAROTOMY.

LUCAS-CHAMPIONNIÈRE (*Journal de Médecine et de Chirurgie Practique*, tome lxiii., 4 cahier) having successfully treated by second laparotomy six cases of post-operative strangulation of the intestine, believes that the success attendant upon this method of procedure justifies him in publishing his methods. He is a strong advocate of purgatives, not fearing even excessive use of drugs of this character, and he holds that the strongest testimony as to the value of this treatment is offered by his six successful cases.

Contrary to many writers, he claims that the diagnosis of intestinal strangulation and the determination as to the proper time to operate are extremely difficult, since even most marked strangulation sometimes gives rise to symptoms which are by no means characteristic.

In the first reported case, the original operation was performed for the relief of strangulation following an ovariotomy. Strangulation symptoms developing, a second laparotomy was performed ten days after the first. More than two hours were spent in stripping and dividing extensive adhesions. The patient made a rapid recovery.

The next case was operated on for the radical cure of a sloughing omenta hernia. Some two weeks later symptoms of internal strangulation developed. The patient's abdomen was again opened. A circumscribed abscess was found, from which considerable pus was discharged, and an adherent loop of intestine was loosened. The patient made a prompt recovery.

The third case was one of left inguinal hernia. Radical cure was undertaken. During convalescence symptoms of strangulation developed, together with the formation of a tumor in the right inguinal region. An incision was made over the seat of tumor, exposing adherent coils of intestine. Median laparotomy was then performed. An abscess was found, together with a gangrenous patch of the bowel. Some months later symptoms of intestinal obstruction again developed; a second laparotomy was performed, adhesions were divided, an intestinal loop was opened, and the patient recovered.

The next case submitted to radical cure for congenital inguinal hernia of the left side. A portion of the omentum was excised. There was secondary bleeding into the belly, followed by symptoms of strangulation. Laparotomy was performed. An enormous quantity of blood was evacuated, and the patient made a speedy recovery.

The last case was operated on for strangulated hernia. A portion of gut was sloughing. This was closed in by suture. Three months after the first operation intestinal obstruction developed, and a laparotomy was performed. An intestinal loop was found closely adherent to the abdominal wall, and there was a sharp kink at this point. This intestinal loop was dissected loose, together with a portion of the abdominal wall, to which it was adherent. The operation required an hour and a quarter. The patient made a rapid recovery.

In commenting upon these cases, the author holds that internal strangulation can be avoided, or, if not, at least the symptoms can be made evident so early that operation gives every prospect of success, provided the patient is actively purged on the day of a belly operation or the day following it.

Even when obstructive symptoms develop, an active purge can still be given, since it will

shortly determine as to whether or not section should be performed. If it does no good, it will not materially complicate the operation, provided a free abdominal incision is made. As to the doctrine that forced purgatives act as excitants of peritonitis, clinical evidence is unanimously against this theory. Indeed, when peritonitis is started, purgatives are the only means which have the slightest effect in abating its violence.

Purgatives should be given after all abdominal operations, particularly after operations for intestinal strangulation. The most important point in the operative treatment of these cases is that the incision should be large. Attached loops of intestine must be freed by means of scissors. Purulent collections must be evacuated and the cavities thoroughly cleaned out. In some cases, to gain sufficient room, two incisions are required,—one vertical and the other lateral. Opium should never be employed, except for the relief of severe pain.

CATHETERIZATION OF THE BILIARY PASSAGES.

TERRIER and DALLY (*Revue de Chirurgie*, 12 an., No. 2) complete their anatomical and experimental study of catheterization of the urinary passages by the following conclusions: Catheterization of the biliary passages is easier in pathlogical subjects than it is when the condition of the parts is normal. This is especially the case when there is dilatation of these passages incident to obstruction of the common duct, or of the cystic canal at its junction with the common duct. In many of these cases, however, because of flexures of the cystic canal, or from the persistence of the valves, or, finally, because the canal enters the gall-bladder at its lateral aspect, catheterism is very difficult, so difficult that at times it is impossible. A thorough anatomical knowledge of the normal course of the passage gives the surgeon his chief dependence, but even this will not guide him in all cases. Forced catheterism, even if the extremity of the instrument is guided by the fingers carried within the abdominal cavity and placed beneath the liver, is a dangerous procedure. Permanent catheterism has not yet been tried sufficiently to establish its value. The instruments to be used in this manipulation are filiform and bulbous bougies and catheters, both rubber and metallic. The instruments employed must be carefully sterilized.

Three cases of catheterism of the biliary passages are reported; one perished.

In the first, incision showed that obstruction was due to a tumor adherent to the spinal column. The gall-bladder was punctured, and a clear fluid escaped, showing that either the cystic duct was not patulous, or the obstruction was placed in the hepatic duct. The gall-bladder was fixed to the parietes, and some days later a sound was passed into the common duct. This resulted in a lessening of the icterus and the appearance of bile in the stools.

Autopsy showed that obstructive symptoms were due to cancer pressing upon the common duct.

In the second case, cholecystotomy was performed for the extraction of biliary calculi. The employment of the Béniqué sound showed, after clearing the bile-duct, that there were other stones obstructing the common duct. These were crushed against the point of the catheter. Immediately after there were abundant bile-stained passages. The patient recovered without fistula.

The third case was also for stone. After operation, the passage of bile was normal for some time, but obstructive symptoms again developed, the stools being entirely without biliary coloring-matter. Through the remaining fistula, by means of a sound, fragments of the stone were found. The cystic duct was then successfully catheterized, the normal passage for the bile was restored, and the fistula was closed.

NOTES ON THE SURGERY OF THE PROSTATE.

WISHARD (*Journal of Cutaneous and Genito-Urinary Diseases*, vol. x., No. 114) contributes some notes on the surgery of the prostate, based upon an experience of twelve cases.

He holds that a large percentage of cases of prostatic cystitis which cannot be relieved by the well-known palliative methods of treatment can be more or less permanently helped by surgical interference. That perineal and suprapubic are the two methods best calculated to accomplish the results sought. Neither one of these operations is suitable in all cases; both may sometimes be required. The objects of the radical operation should be the removal of the mechanical obstruction to urination, and the securing of drainage and rest for the bladder.

Statistics show that partial or complete restoration of bladder function has followed in two-thirds of the reported cases. Even when loss of muscular power and diminution in the

size of the bladder would apparently render futile efforts at radical relief, it has been shown that there may be after operation a more or less complete restoration of bladder function in a large percentage of cases. Clinical evidence indicates that intravesical growths have been present in almost all cases operated upon, and that such growths usually, by the modification of the contour of the distended bladder and mechanical interference with the perfect emptying of the same, are the chief causes of the symptoms which are commonly encountered. Nevertheless, the author holds that similar symptoms may be produced by hypertrophied tissue projecting into the prostatic canal, or growing downward towards the rectum.

From Belfield's statistics of one hundred and thirty-three cases of operation for enlarged prostate, it would seem that the perineal operation is safer than the suprapubic. The rate of mortality by the suprapubic is sixteen per cent., and by the perineal nine per cent.

The objections to the perineal operation are that in thirty per cent. of reported cases the bladder could not be reached and explored, and that in many cases, even when this was possible, the exploration could not be as thorough as would have been possible by suprapubic incision. When a tumor of large size is found by rectal examination, there is usually a long prostatic urethra and increased perineal distance.

The indication for preferring the perineal operation would be the absence of a large rectal tumor. Five of the reported cases offered the conditions for this method of procedure. In all the bladder was explored with the finger, and was carefully inspected through a large tube.

The writer met with no distinct pedunculated middle-lobe growths in the cases operated upon. Prolonged drainage was used in several cases, but in no instance was a permanent fistula formed. Where death followed perineal incision, the danger would not have been lessened by the suprapubic opening. One case died from shock, another from uræmia, and one case of combined incision perished from shock.

The writer states that in one case the use of the rectal bag was followed by pronounced arterial depression and respiratory disturbance. In two other patients the bag produced distinct shock. Residual urine was present in all the cases operated on. It was found after recovery in but two. The average age of the patients was 62½ years.

TREATMENT OF EXOPHTHALMIC GOITRE.

DREESMANN (*Deutsche Medicinische Wochenschrift*, No. 5, 1892) holds that the treatment of exophthalmic goitre should be conducted on surgical rather than on general medical principles. In other words, that this disease should be subject to operative procedure. Benard first reported cases of struma, accompanied by exophthalmos and palpitation of the heart successfully treated by surgical measures. MacNaughton Jones passed a seton in one case, and irritated the parenchyma of the tumor by means of chloride of zinc. This was followed by improvement in both local and general symptoms. Ollier divided the skin on both sides of the goitre, and by means of irritating applications caused sloughing of a cyst. This patient was cured. Lister extirpated the tumor in one case of exophthalmic goitre. Within two weeks the rapid action of the heart ceased, and shortly after the exophthalmos became very much less marked, and the other symptoms steadily improved.

Tillaux operated on two cases. In both characteristic symptoms of goitre rapidly disappeared. One case was definitely cured, the other, the disease being sarcomatous, died of recurrence later.

Other operators have treated these tumors with the knife with similar results.

Kocher recommended ligature for Basedow's disease, and in a paper contributed by Dreesmann, three cases of ligature are given; in all the results were most satisfactory. From a study of the cases contributed to literature, it seems clear that, following successful surgical intervention, all the systemic disturbances incident to exophthalmic goitre are relieved. Within a few days the pulse often becomes normal. In some cases the exophthalmos entirely disappears, while the muscular tremors, increased sweating, sleeplessness, and other symptoms, of which patients so constantly complain, are entirely relieved. Tetany and cachexia never appear unless the gland is entirely removed. As to the choice between extirpation and ligation, this must depend upon the merits of the individual case. Where the tumor is so limited in size that both the superior and inferior thyroid arteries are accessible, ligation would seem to be the operation of choice, all four vessels being secured. Where these vessels cannot be tied, enucleation should be undertaken. It must be remembered that in this disease the vessels are often exceedingly friable, and there is danger of producing an uncontrollable hemorrhage. Indeed, Kocher lost one such case from bleeding.

In cases of cystic goitre, attended by symptoms of Basedow's disease, ligature, of course, would be futile. In whatever way the patient is treated, it is of cardinal importance that he should be protected from every disturbance, either physical or mental, for some period after operation. The strength should be carefully nursed, the diet should be nourishing, and tonics should be administered, preferably arsenic.

GUNSHOT WOUND OF THE BELLY TREATED BY LAPAROTOMY.

FONTAN (*Revue de Chirurgie*, No. 3, 1892) reports a case of gunshot wound of the belly, the ball entering a little to the right of the umbilicus, and passing downward and backward. It was at first thought that the peritoneal cavity had been entered. Two days later the patient suffered from fever, contraction of the psoas muscle, and pain in the hip. The following day nausea and vomiting and swelling of the belly were noted. An incision was made similar to that employed in ligating the iliac artery.

On opening the peritoneal cavity, pus and a brownish liquid escaped. In the latter were discovered fragments of tænia. Perforation of the cæcum was found and sutured. The belly was closed, two large drainage-tubes being left in place.

At the fifteenth day there was active hemorrhage through the drainage-tubes. This was found to come from the circumflex iliac artery, which was tied. During the course of this operation the ball was discovered in the iliac fossa. The patient ultimately recovered.

COCAINE ANÆSTHESIA IN THE RADICAL CURE FOR HYDROCELE.

NICASE (*Revue de Chirurgie*, No. 3, 1892), in a discussion before the Société de Chirurgie upon a case of death due to the injection of cocaine into the tunica vaginalis, stated that such cases should not lead surgeons to abandon a method which, if properly employed, is without danger, and which entirely prevents the pain incident to the injection of iodine into the serous investment of the testicle.

He describes his method of treating hydrocele. He first punctures the tunica vaginalis, and allows about one-fourth of the liquid to escape. He then injects into the liquid which remains within the vaginal tunic forty minims of a four per cent. solution of cocaine. The scrotum is then lightly manipulated for four or five minutes, when the rest of the liquid contained in the tunica vaginalis is evacuated and an iodine injection is made.

The solution injected contains about one and a half grains of cocaine. This will secure absolute anæsthesia even when it is diluted by a quantity of hydrocele fluid sufficiently great to make the percentage of cocaine about 1 in 4000.

This method of procedure possesses the advantage of permitting the absorption of but a very small portion of the drug.

CURE OF CANCER OF THE TONGUE.

QUENU (*Revue de Chirurgie*, No. 3, 1892) reports the case of a patient from whom four years ago he removed a cancerous tongue, and also a portion of the cheek, which was involved in the disease. At the time of operation the submaxillary glands were involved, but, nevertheless, the patient remained well.

JALAGUIER communicates notes of a similar case. The patient, aged 60, was operated on in August, 1888. The entire tongue, and portions of the cheek, of the inferior maxilla, and of the submaxillary glands were removed. The patient is now well.

INTESTINAL ANASTOMOSIS.

ABBE (*Medical Record*, vol. xli., No. 14) reports a number of cases of intestinal anastomosis and suturing. He holds that, from the evidence of published and unpublished cases, the use of artificial aids to accelerate the operation of anastomosis is attended by the risks of leakage or suppuration, or hemorrhage or obstruction from plates or irritation of the intestinal canal from so considerable a foreign body.

The question of time gained during what is usually a prolonged operation, perhaps, at most, five or ten minutes, in the face of the uncertain advantages of bone-plates, is one which is greatly outweighed by the superior advantage of having absolute security against leakage and blocking, and the other disadvantages attendant on the use of plates, by the simple method of suturing.

The technique of suturing is easier in its application and more satisfactory in its results than any of the newer methods. Another of the disadvantages of Senn's plates lies in the fact that the opening between the two loops of bowel is not over an inch and a half in length. Cicatricial contraction may so reduce this opening in size that it is en-

tirely inadequate for the services for which it was made. In one of Abbe's cases, six months after operation, the opening was found to have contracted to three-quarters of an inch; in a second case, six months after operation, the opening contracted to half an inch; in a third case, eight months after operation, a three-inch opening had contracted to one and a half inches.

The author believes that the future utility of lateral anastomosis lies in making openings four inches in length in the sides of adjacent bowel-loops. This he holds is impossible with bone-plates, and can only be accomplished by very long catgut rings or vegetable plates, and then with less security and with as much consumption of time as by suturing.

In regard to the time consumed, Abbe states that a lateral anastomosis in a living person, by either plates or rings, consumes twenty or twenty-five minutes, and the same operation by simple suturing, done with the greatest nicety and perfect security, was done in twenty minutes.

In case of great fæcal accumulations, Abbe strongly advocates the uniform practice of first creating an artificial anus, thus allowing a few days for recuperation, and avoiding the fæcal toxæmia, which is so serious a factor when the stagnant flood of fluid fæces flows freely into the unused and receptive bowel eager for absorption.

The following represents the technique of suturing: The two surfaces that it is proposed to unite are brought well up in the wound, and surrounded by small compresses of gauze or towels, or flat sponges wrung out of hot water. A half-dozen fine cambric needles are provided, each threaded with the finest black embroidery silk that has been well boiled and stored in alcohol. This silk is cut in lengths of not more than twenty-four inches, and tied with a single knot at the eye of the needle, with one end cut to within two inches. Two parallel rows of continuous Lembert sutures, one-quarter of an inch apart and an inch longer than the proposed cut are applied. Each thread, with its needle attached, is left at the end of its row. The bowel is now opened by scissors, cutting a quarter of an inch from the sutures, both rows of which should remain on one side of the cut. The opening of the bowel should be four inches long. The bleeding points are temporarily secured by clamps, which may pinch the entire thickness of the cut edge. No ligatures are used. The opposing bowel is treated in the same manner. The parts are rinsed with water, and another silk suture is started at one corner of the openings, uniting by a quick overhand stitch the two cut edges lying next to the row of first sutures. The needle secures both serous and mucous coats, and thus secures the bleeding vessels, from which the clamps are removed as the needle reaches them. This suturing is then continued around each free edge in turn, and all bleeding points are thus secured more quickly than by ligating. The serous surfaces around these button-holes are then rapidly secured by a continuation of the sutures first applied, the same thread being used, the one nearest the cut edge first. The united parts are rinsed in water and dropped into the abdomen.

In conclusion, Abbe states that the effort to simplify the technique of lateral anastomosis by bone-plates and other devices has not improved it; that in most cases a thorough suturing with a fine silk continuous suture, applied in the manner detailed, is most satisfactory; that in order to allow for the inevitable tendency to stenosis, an aperture four inches long should be made; that scarifying opposing surfaces is entirely unnecessary to quick and solid repair.

REMOVAL OF SARCOMA OF THE MESENTERY AND RESECTION OF THE SMALL INTESTINE.

McCann (*Pittsburg Medical Review*, vol. vi., No. 3) successfully removed a spindle-celled sarcoma of the mesentery, together with a portion of the small intestine.

The patient exhibited a small and movable tumor of the abdomen about twice the size of a kidney. Beyond this he had no symptoms. The abdominal cavity was opened, and the growth was found adherent to the mesentery and small intestine. The adhesions to the latter were so tight that about eight inches of the bowel had to be resected. The open ends of the divided intestine were united by two rows of fine silk sutures. The abdomen was drained. Twenty-one days later the patient was discharged entirely well.

TREATMENT OF GONORRHŒAL RHEUMATISM.

Brodhurst (*Med. Press*, vol. liii., No. 2758) advises as the treatment for gonorrhœal rheumatism that the affected joints should be wrapped in lint, covered with mer-

curial ointment; that they should be bandaged as firmly as can be borne, and that the patient should be brought rapidly under the influence of mercury, preferably by inunction. With such treatment pain and swelling quickly disappear, and the joints resume their normal condition. At this stage passive motion should be instituted to ascertain if the motion of the affected joint is free, for lymph will have been deposited on the synovial membranes through which adhesions form. These bands soon become firm, and resist any attempt that the patient can make to move the joint.

This treatment, according to the author, never fails, if resorted to at the onset of the inflammatory stage. The knee, the hip, the elbow, and the shoulder are most frequently affected by this form of inflammation. Anchylosis may result not in one joint only, but in every articulation of the body. When, after inflammation has ceased and passive motion has not been employed, adhesions remain and become firm, force is needed to restore mobility. This should always be used in the direction of flexion, since, when thus employed, no injury can accrue to any structure. Under some circumstances division of the flexor muscles is necessary.

The author states that ten years ago he had operated on upward of one thousand cases of fibroid anchylosis, and since that time he has never known of one instance of any accident, whether displacement or fracture, or inflammation, or injury of any kind.

An experience covering one thousand cases of anchylosis from gonorrhœal rheumatism is one so large that few surgeons are able to parallel it.

TREATMENT OF CYSTITIS BY SUBLIMATE INSTILLATIONS.

GUYON (*Wien. Med. Blätt.*, 15 Jahr., 11) has carefully observed the results of treatment of twenty-six cases of cystitis.

Ten of these cases were treated by irrigation,—two were cured, two were improved, and six were not benefited.

The other sixteen were treated by instillations of sublimate,—eight were cured, six were greatly benefited, and two were slightly benefited. Two cases of tubercular cystitis were so markedly improved that they were apparently cured. Three other cases of a similar nature were made distinctly better. The injections were borne very well by tubercular individuals. This is what cannot be said of nitrate of silver, creosote, naphthol, lactic acid, iodoform, and the other materials commonly employed.

Of seven cases of blennorrhagic cystitis, four were cured and one was much improved. Two cases of prostatic cystitis were greatly improved by instillation after irrigation had been shown to be without benefit.

In regard to the technique of instillations, the sublimate solutions must be weak. One to 1000 is entirely too strong, at least in the early treatment of the case. Ordinarily 1 to 5000 is the proper solution with which to begin. This rarely occasions pain. None of this lotion should be allowed to flow into the anterior urethra, since here it excites inflammation. The instrument should be passed through the compressor urethræ muscle, and the solution should be forced in so that it follows along the whole posterior urethra until it reaches the bladder. At the first treatment 20 or 30 drops should be used. This quantity is gradually increased until about 1 teaspoonful is employed each time. The amount to be injected depends a good deal upon the pain. If the latter is marked, the quantity of the lotion employed must be diminished. The sublimate differs from the nitrate of silver employed in a similar manner, from the circumstance that the strength of the former cannot be greatly increased. Before making an instillation, the bladder must be entirely emptied. When there is such an abundant purulent secretion that it is impossible for the lotion to come in immediate contact with the bladder-wall, treatment should be preceded by thorough irrigation, but this should be employed only in the absence of acute symptoms.

None of the cases in which the instillations were tried showed any bad effects as a result of treatment.

THE CLINICAL VALUE OF TRACHEAL TUGGING.

Under the title of tracheal tugging,—that is, a downward jerk of the trachea with each heart-beat,—EWART (*British Medical Journal*, No. 1629) described the best method of detecting Oliver's sign of aneurism.

To elicit this sign, the patient is placed in an erect position, and directed to close his mouth and elevate his chin to the fullest extent. The surgeon then grasps the cricoid cartilage between the fingers and thumb, and draws it gently upward, when, if dilatation or aneurism exists, the pulsation of

the aorta will be distinctly felt, transmitted through the trachea to the hand.

To determine the clinical value of this sign, over one hundred subjects were examined. Though tugging was present in a considerable number of these cases, it was not very marked.

Conversely, it must be admitted that aneurism of the aorta does not necessarily occasion tugging. The mechanism of tugging is apparently simple. The arch of the aorta passes across the left bronchus. If this portion of the artery is dilated, it will, of course, press downward upon the bronchus, and strong pulsation will be communicated to the trachea.

THE RADICAL CURE OF THE INGUINAL HERNIA OF INFANTS.

BROCA (*Revue Mensuelle des Maladies de l'Enfance*, tome x., 1892) reports a number of cases of inguinal hernia in infants cured by performing the operation of radical cure.

He quotes Berger to the following effect: "The great majority of the hernias of newly-born children, treated by retention apparatus, cease to come down within a few weeks. They are generally cured, provided the treatment is continued sufficiently long; for two or three years, or even more. This is well proved by a statistical study of the subject. When hernia is complicated by ectopy, if the testicle can be kept in the scrotum while the hernia is reduced, an effort should be made at retention by means of a truss or bandage. If, however, the testicle is retained behind the external ring, the truss or bandage must be discarded, since it will probably interfere with the descent of the testicle, and will favor the formation of interstitial hernia.

"It is only in exceptional cases, when the hernia is steadily increasing and cannot be retained, and especially when it becomes irreducible, that the surgeon is justified in practising the radical cure in the first year of life."

Broca subscribes fully to these conclusions of Berger, and states, moreover, that strangulation in the first year is extremely rare, since in all cases very gentle manipulation will accomplish reduction.

After the first year, however, the indications are somewhat different. Berger states that, even up to adolescence, inguinal hernia may be cured by means of a truss. This cure, however, is not so sure, and is tedious in direct proportion to the length of time between birth and the appearance of the hernia. The accidents which result from imperfect retention are very much more to be feared later on than in the first year of life, and the chances of normal migration of the testicle, when this organ is ectopic, are distinctly less as the child grows older.

Broca finds distinct disadvantages in the prolonged application of a retention apparatus, and states that when a child of 3 years or older is brought to him suffering from congenital hernia, he tells the parents that by applying a truss day and night for several years, cure will probably be obtained, but this cure is not certain. Even should the child be cured, the hernia may reappear later in life. By means of a perfectly safe operation, however, an absolute cure may be obtained in a month.

In arriving at this conclusion, the author does not consider the fact that in the adult the great majority of so-called radical cures show recurrence of the hernia in a few years; that statistics are wanting to prove that these results are any better in children, and that in most cases the application of a truss is attended by no serious inconveniences.

SURGICAL TREATMENT OF GOITRE.

REVERDIN (*Revue de Chirurgie*, No. 3, 1892) advises in cases of goitre the administration of 3 grains of iodoform a day, and claims as a frequent result marked improvement in from twenty to thirty days. When this treatment has proven unsatisfactory, and when the symptoms are becoming progressively more serious, particularly when the patient is troubled by intermittent or continued respiratory disturbance, surgical intervention is indicated. The choice of operation will lie between extirpation or enucleation, with a distinct preference for the latter method.

If the goitre previously has been subject to a large number of punctures and injections of iodine, enucleation is practically impossible; such cases are, however, comparatively rare. The difficulties of enucleation in such cases are due to the profound alteration of the parts, which prevents the operator from knowing when he has arrived at the capsule of the tumor proper, and to the fact that hemorrhage is very difficult to control.

It is of cardinal importance in operation on a goitre to make an incision so large that the surgeon has plenty of room for deep dissection. Nearly always a single linear cut will be sufficient. When it is carried parallel to the inner border of the sterno-cleido-mas-

toid it occasions little subsequent deformity, and can be carried down far enough to give the surgeon plenty of room. If the muscles are stretched over the surface of the goitre, they should be divided without hesitation ; to be subsequently sutured, if this is possible after the tumor has been removed.

When the thyroid is reached it is found as a more or less regularly spherical mass, over the surface of which large vessels pass. These vessels should be divided between two forceps. They are easily seized, but are exceedingly friable, so that the forceps readily tear through their coats. The tissue of the thyroid gland itself should not be included in the forceps, the vessel only being seized. This is a most important point. The tissue of the thyroid gland when denuded is dark red, turgid. Choice of operation will rest between total extirpation, partial extirpation, or enucleation. The probability of myxœdema following total extirpation is so great that it should be absolutely rejected if there is any other choice. Partial extirpation should be practised only when enucleation is impossible.

Enucleation being indicated and the tissue of the thyroid having been exposed by the division of the capsule, the tumor itself must be reached by careful dissection. The maxim has been laid down that as long as the surgeon is in doubt he has not reached the tumor. The latter is recognized by the fact that it is grayish-brown in color and of smooth surface ; in fact, quite different from the tissue of the thyroid. When the tumor is reached, the incision through the substance of the thyroid is enlarged ; then, by means of the finger or a spatula, the new growth is rapidly shelled out from the tissue which surrounds it. This portion of the operation should be accomplished as quickly as possible, for it is accompanied by violent hemorrhage, which can be arrested only when the entire tumor is removed. The bleeding is arrested by means of tampons, and especially by seizing the deepest part of the cavity from which the tumor has been enucleated in a strong pair of hæmostatic forceps and drawing these forceps upward. This manipulation by turning the pocket inside out has the effect of kinking the vessels and promptly arresting hemorrhage. A skilful assistant is of great importance in this operation, since rapid sponging enables the surgeon to clamp the numerous bleeding points without loss of time. In a few seconds the violent bleeding is arrested. Catgut ligatures should be employed, and should not include too much tissue. Neglect of this latter precaution is often followed by small sloughs, which will cause the whole wound to reopen.

Unless the wound is infected, douching with strong antiseptic solutions should be avoided. The wound should not be closed until hæmostasis is perfect. Drainage should be provided for, and the cavity should be made as small as possible by the use of deep sutures. Antiseptic dressing is applied, and kept in place by a flannel bandage.

The dressing is renewed the second or third day, at which time the drainage-tube is removed. The fourth or fifth day the stitches are taken out. The dressing is made up of iodoform gauze, of carbolized cotton, and of absorbent cotton. The patient should be allowed to sit up as soon as he desires to do so.

Reverdin reports fourteen cases of operation on goitre. He performed seven partial extirpations and seven enucleations. All but one recovered. Among these there were nine women and five men. The tumors were mostly on the right side. Enucleation required on an average in six cases about twenty-six minutes, and the patient was well in less than seven days.

Partial extirpation required somewhat over an hour, and convalescence lasted about two weeks.

As a conclusion to this paper, Reverdin states that in dealing with goitre, the surgeon should give to enucleation the preference above all other operative means of treatment.

PERINEAL DRAINAGE AND SUPRAPUBIC LITHOTOMY.

HERBERT (*British Medical Journal*, No. 1631, 1892) states that perineal drainage in suprapubic lithotomy is seldom needed in civilized countries, where cases of stone usually come under treatment at an early stage; but where suprapubic incision is made only after the bladder and kidneys have become profoundly altered, this added method of draining off all the foul discharges will often save lives which would otherwise be lost. He objects to the ordinary soft drainage-tube because it is liable to become blocked, either by prolapse of the collapsed bladder-wall or by mucus and pus. In preference he employs a silver lithotomy tube pierced with two rows of large, closely-set openings for the terminal, one and a half inches of its length.

The puncture in the perineum is made after

the suprapubic wound, with the left index-finger in the prostatic urethra from above as a guide. Thus performed it is exceedingly simple. The opening should be just large enough for the insertion of the tube, and, if kept accurately in the middle line, necessitates the loss of only a few drops of blood. True drainage is secured, as distinguished from the overflow through the suprapubic wound, which, together with the cavity of the bladder, is kept perfectly clean, and thus absorption by large raw surfaces is avoided.

The first case in which Herbert employed this method was accidental. An Arab presented himself, with a phosphatic stone, found afterwards to be over ten ounces in weight. Having tied the penis with tape, after the injection of four ounces of fluid, the membranous urethra ruptured, and the penis, perineum, and scrotum rapidly filled up. To relieve this a median puncture was made at the base of the perineal swelling, extending into the urethra, so that it could be available for bladder drainage afterwards. This incision necessarily wounded the bulb, and there was considerable blood lost. The patient did well, until an effort was made to do away with perineal drainage.

In a case operated upon by the ordinary method, in which no perineal drainage was employed, the patient perished with symptoms of septic absorption, and post-mortem showed a small retropubic abscess. The author believes that perineal drainage would have saved this patient, and is persuaded that the two chief causes of death after suprapubic cystotomies, suppurative nephritis, and retropubic abscess would be generally eliminated were this measure properly carried out. He believes it probable that perineal drainage would be of advantage in all cases of high operation where the urine is stinking and alkaline.

THE REMOVAL OF NECROTIC AND CARIOUS BONE WITH HYDROCHLORIC ACID AND PEPSIN.

MORRIS (*New York Medical Journal*, vol. lv., No. 12) publishes a method of removing dead bone without subjecting a weak patient to a dangerous or deforming operation. An opening is made through soft parts by the most direct route to the seat of dead bone, and, if sinuses are present, they are all led into the one large sinus if possible. The large direct sinus is kept open with antiseptic gauze, and the wound is allowed to remain quiet until granulations are formed, since granulation tissue contains no lymphatics, and absorption through it of septic material is comparatively slow.

The next step consists in injecting the sinus with a two or three per cent. solution of hydrochloric acid in distilled water. If the patient is confined to bed, the injections can be made at intervals of two hours during the day; if he is up and about, the acid can be injected at bedtime. In either case the part is placed in such a position that the injected fluid will be retained.

Decalcification takes place rapidly in the exposed layers of dead bone. This having been accomplished, another procedure is necessary. This consists in the injection at intervals of two days of an acid-pepsin solution thrown into the sinus. This solution is made by adding to four ounces of distilled water sixteen minims of hydrochloric acid and half a drachm of pepsin. This solution digests out decalcified bone and caseous or fatty *débris* in about two hours, leaving clean dead bone exposed for a repetition of the procedure. The treatment should be preceded each time by washing with peroxide of hydrogen.

Reviews.

ARTIFICIAL ANÆSTHESIA AND ANÆSTHETICS. By De Forrest Willard, A.M., M.D., Ph.G., and Lewis H. Adler, M.D.
Detroit: Geo. S. Davis, 1891.

So many books upon the action of anæsthetics have been published during the last few years that the profession must be well provided with instructions as to the methods to be followed in the administration of these drugs, and in the treatment of the untoward symptoms which sometimes follow their use. Drs. Willard and Adler have in this little brochure gone with thoroughness into the questions which are present in every one's mind if the administration of ether or chloroform is considered. In some portions of the work they have given the very latest views concerning the treatment of the accidents occurring during chloroform and ether anæsthesia, but we note that they have failed to recognize the importance of the methods proposed by Howard for the removal of mechanical obstruction to breathing. They have also failed to consider the researches which have been made in this country in regard to Howard's method, and in the brief

space of four lines attempt to give directions to the physician as to what is to be done with the jaws and tongue when accidents occur.

The proper way to open the respiratory tract under such circumstances does not consist, as they state, in drawing the tongue forward at the same time that the jaw is pushed forward as far as its articulation will allow. Drawing the tongue forward over the teeth in the lower jaw does not completely open the glottis; it is necessary that at the same time the jaw be shot forward as far as possible, and that the tongue shall be lifted from the floor of the mouth while it is being drawn forward, being pulled rather in the direction of the upper than of the lower jaw. In other words, it should not be made to curve forward over the lower teeth. In addition to this it might have been well if the authors had stated that the proper position of the head when the body is lying flat on its back is not in full retraction nor flexion upon the chest, but in extension in a direct line with the body, and that the surgeon should make a movement which tends to project the entire head from chin to forehead directly forward or upward. Under these circumstances it will be found that the glottis becomes very much more widely opened than in any other position which the head may assume, as by this means not only is the glottis opened, but the passage-way for the air is straightened as much as possible. The position of the neck is practically that assumed by a long-distance runner, who desires to increase his respiratory capacity,—that is, an extended neck, on which the head rests. We think it will be found that $\frac{1}{60}$ to $\frac{1}{80}$ of a grain of strychnine is not a sufficient dose in severe cases of ether or chloroform narcosis. Under these circumstances the case demands radical treatment, and $\frac{1}{20}$ of a grain of strychnine is certainly not too much to be used by the hypodermic needle, and repeated in ten minutes if the first dose does not act.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. A CONTRIBUTION TO THE PATHOLOGY OF HIGH ORGANIC TENSION, HEADACHE, EPILEPSY, MENTAL DEPRESSION, ACUTE RHEUMATISM, DIABETES, BRIGHT'S DISEASE, AND OTHER DISORDERS. By Alexander Haig, M.A., M.D., F.R.C.P. Illustrated.

London: J. & A. Churchill, 1892.

As stated in the author's preface, this book is a *résumé* of the facts and arguments presented by him in some twenty-five papers published in various journals and transactions, placed together in very much the same manner as the articles which Dr. Brunton has placed in his volume upon "Indigestion."

After reading the book from beginning to end, we cannot but express admiration for the interesting manner in which the subjects are discussed; the smoothly-running English, which takes you from paragraph to paragraph; and the originality and ingenuity, with which Dr. Haig has bound together medical fact and fancy, until one is almost inclined to attribute most of the diseases or symptoms which occur in man to the presence of the uric acid, for which Dr. Haig has so persistently searched. While there are many places in the book in which the line of argument superficially seems most convincing, it is by no means infrequent to find, upon careful consideration of the arguments or assertions that an important hiatus exists in the series of facts by which he has reached his conclusions. These spaces, or missing links, if we may call them so, may not really exist in fact, although they seem to exist in the text.

Dr. Haig is so enthusiastic in his subject, and is so imbued with the results of his experiments, that one cannot help the feeling that he is scarcely an unbiased judge in the scientific consideration of the importance of uric acid as a producer of disease. On the other hand, the book is one of those of which there are too few at the present day, which is based both upon scientific and clinical experimental research, so neatly joined together that it proves at once a valuable stimulant to the clinician and to the pathologist.

Whatever we have just said which may have seemed derogatory has been said rather with the object of telling the truth than with finding fault. Dr. Haig is a firm believer that uric acid is the definite cause of rheumatism and gout, believing that while the symptoms of these two diseases are often quite different, that the difference exists in degree rather than in kind. Perhaps the most interesting series of experiments which he has carried out are those which have been directed to the effect upon the elimination of uric acid, which is exercised by a large number of alkaline substances and the salicyl series. He believes that these substances cure rheumatism and similar conditions by forming soluble urates, and thereby rapidly increasing the excretion of the effete material,—namely, uric acid. He does not believe that the accumulation of uric acid in the body is so much the result of excessive formation as of faulty excretion. Thus he has found in himself, he being a person subject to the uric acid

diathesis, that the proportion of uric acid and urea eliminated in each twenty-four hours is as 1 to 33. The occurrence of uric acidæmia occurs only if the proportion between these figures is changed as from 1 to 66. In other words, only one-half as much uric acid is excreted under these circumstances as in ordinary circumstances, and by the retention of this uric acid two sets of symptoms may be produced,—namely, those which are due to the presence of this substance in the blood, or those which are due to its presence in the other tissues of the body. If the uric acid is present in the blood, migraine and various forms of headache may develop. When in the tissues, no symptoms may come on until the accumulation is so great that either rheumatism in some form appears or gout asserts itself, or until there is an overflow, so that rheumatism is produced. By the administration of the alkalies and the salicyls, soluble urates or salicylic acid is formed by the tissues, taken up in the blood, and rapidly eliminated by the kidneys.

An interesting fact is that lithia has proved itself of comparatively little value in the uric acid diathesis. As pointed out by Haig, the reaction which takes place between lithia and uric acid in the test-tube is most beautiful, but when placed in the human body all the lithia enters into combination with the acid phosphate of sodium in the blood much more readily than with the uric acid, and in consequence the latter substance remains intact, or rather it does not enter into combination.

It is impossible, in the space which is given us for a book review, to discuss with any justice the facts which are put forward by Dr. Haig. We consider the book as a distinct epoch-marker in the literature of the medicine of the day, and we are assured that the profession owes to Dr. Haig its hearty thanks for his labors, and owes to itself the purchase of the book and the thorough consideration of its contents, which is rendered all the more easy by the delightful style and scientific acumen which marks its pages.

PHYSICIAN'S LEISURE LIBRARY SERIES. DISEASES OF THE PROSTATE. By Hal. C. Wyman.
Detroit, Mich.: G. S. Davis, 1891.

This book is evidently written by one who has had large experience with cases suffering from diseases of the bladder and prostate, hence it is more a clinical guide than a scholarly treatise. He who expects to find an exhaustive review of the whole subject, with every recorded treatment carefully set down, will be disappointed. This is evidently not the scope or object of the book, but the man who has to deal with diseases of this character will gather many useful hints from the pages of this work. Modern teaching and practice seems in some cases to be slighted. Thus the endoscope is entirely tabooed.

The author's experience, no doubt, justifies him in conclusions with which some progressive surgeons will not agree.

HISTORY OF CIRCUMCISION, FROM THE EARLIEST TIME TO THE PRESENT; MORAL AND PHYSICAL REASONS FOR ITS PERFORMANCE, WITH A HISTORY OF EUNUCHISM, HERMAPHRODISM, ETC., AND OF THE DIFFERENT OPERATIONS PRACTISED UPON THE PREPUCE. By P. C. Remondino, M.D., Jefferson; Member of American Medical Association, etc.
Philadelphia and London: F. A. Davis, 1891.

In this age of research it would be strange, indeed, were any custom so old and so apparently abnormal to escape the eye and the pen of the archæological student. And a real reason, the author tells us, exists for his work independent of mere curiosity. The acceptance of circumcision as a necessity in many cases renders necessary a knowledge of the argument in its support. These arguments he considers are furnished by this book. Now, we do not agree with the author, even after reading his work with interest and pleasure, that circumcision is a custom which should be universally observed, or that there is any lingering sting in the epithet of "uncircumcised" which should drive us to adopt a custom which, on his own showing, is a relic of barbarism and a sign of subjugation. The author's arguments are twofold, and one, curiously enough, tells against the other. First, he shows us how circumcision is the emasculated remnant of the ancient custom of cutting off the virile organs of the vanquished and the slain. Then, as captives were valued more, and lives were spared, castration took its place, and, finally, the foreskin alone suffered, and the circumcised, marked as slaves and captives, were allowed to live and propagate their species for the benefit of their conquerors. Viewed in this light, circumcision is shorn quite of its hygienic virtue, and exhibited solely as a degrading relic of antiquity, bearing in itself the history of all the evil passions of the race. Its rage, its venom, its hatred of foreign nations, its vicious patriotism, its lust, which was unable to allow the same passion to exist any longer in the conquered. This presents us with one view.

On the other hand, we are shown the early

races of men needing the foreskin as a protection. They went on all fours, and even when they rose to their hind feet and travelled along in that way, they were still liable to bruises and scratches from brambles, rocks, and trees, and were bitten by insects, so that the preservation of the species demanded the protection of the virile organ. As man, however, became more civilized and wore clothes, even if scanty ones, the necessity for the prepuce diminished, and then it occurred to some hygienic genius of antiquity, or, as some would say (our author included), it was divinely ordered, that the prepuce should be removed in the interest of cleanliness and health. The author, by the way, is a believer in Mosaic chronology, and does not for a moment doubt that the legislation of the Pentateuch was genuine and divinely inspired, hence when he finds that the Egyptians and the Arabs, the Phœnicians and the tribes so familiar to us by their biblical names of Philistines, all used circumcision, he naturally is forced to the conclusion that, as God gave it to Moses, he must either have given it to the Gentiles also, or they, struck by its hygienic value, for we know how earnest they were in all matters of sanitary science, adopted it gladly.

The reader can now see our meaning in saying that the two lines of argument are not exactly mutually supporting. God gave it to man in what the author calls "the hills of Chaldea," a poetical term, which seems to have struck his fancy, for he repeats it over and over. Man also developed it in earliest ages from his own brutality, and it has survived in mitigated form. Which are we to believe?

Again, if it is so valuable a sanitary measure as to force the divine ruler to reveal it to mortals, is there any other valuable fact in hygiene so revealed? Has divine revelation ever given us specifics and cure-alls, or taught us to shun known perils? All will agree that it has not. But, as the device of a wise ruler to keep a nation separate from others, it may have been of use; more at the present time than in that remote past, when the Jews existed, surrounded by circumcised nations.

In these days, when nature is exalted, until for many nature and God are quite the same, see how nature considers the removal of the prepuce. If removal strengthens and protects a race, then natural selection should have assisted art and religion in shortening the normal prepuce in the infants of successive generations of the circumcised, and the occupation of the circumciser should have ages ago become but a sinecure. Instead of which we find patient nature ever shaping the prepuce in each growing infant just as of old, heedless alike of the barbarity that once ablated the whole organ and its appendages, and the more refined though equally useless mutilation that religion has dictated.

After all the author's arguments, we are still unconvinced, believing that we can hardly improve on nature, and that the operation of circumcision is one which should be performed only when actually needed. Its value has been greatly overrated by enthusiasts, and back of the crusade against the prepuce, and behind the mask of Hygeia lurks the desire to make the civilized world adopt the cut-off customs of a by-gone age.

E. W. W.

LESSONS IN THE DIAGNOSIS AND TREATMENT OF EYE-DISEASES. By Casey A. Wood, C.M., M.D., formerly Clinical Assistant, Royal London Ophthalmic Hospital; Microscopist and Pathologist to the Illinois Eye and Ear Infirmary; Professor of Ophthalmology, Post-Graduate Medical School; Oculist and Aurist to the Alexian Brothers Hospital, Chicago.

Detroit: Geo. S. Davis, 1891.

This valuable series of lessons considers its subject with reference to the needs of the physician in general practice who does not use the ophthalmoscope, and would be confused rather than enlightened by the account of ophthalmoscopic symptoms. It may be regarded as supplementary to the works by Roosa, Mittendorf, and Claiborne that have preceded it in the same series.

The first lesson is an admirable one upon the examination of the normal eye. For practising what is taught in it, every physician and student can get plenty of living material; and a thorough acquaintance with the normal eye carries one a long way on the road to a full understanding of eye-diseases.

The book contains over thirty illustrations, mainly of instruments and modes for treatment.

E. J.

THE MEDITERRANEAN SHORES OF AMERICA; OR, THE CLIMATIC, PHYSICAL, AND METEOROLOGICAL CONDITIONS OF SOUTHERN CALIFORNIA. By P. C. Remondino, M.D. Illustrated.

Philadelphia: F. A. Davis & Co., 1892.

This is another book by the author of the "History of Circumcision," which is reviewed in this number of the GAZETTE, and those who have read the review of that book need only be assured that the author writes as enthusiastically of this subject as he did of that; although, if the hygienic results obtained from health re-

sorts were compared with those obtained by the methods advocated in the book which was first reviewed, we are quite sure that the count would be on the side of circumcision. If Dr. Remondino can be believed, no better way of expressing in a few words the exact characteristics of this book can be found than by saying that it is a popular work on climate, written by a medical man. For this reason it is void of much of the trashy nonsense which laymen's books contain upon such subjects; but at the same time it is to be definitely understood that it is not in any way an exhaustive book upon climate from the medical point of view, but is rather one which might form part of a popular health series. The illustrations are copious, and are in some cases apt and in others useless. We cannot see the necessity of taking a whole page for the picture of a Mexican Indian one hundred and forty years old, nor do we think that another full-page illustration, showing "a boy surrounded by a mass of ferns," has any particular bearing upon climate. Any physician who desires to place in the hands of a patient a book which will not weary him with detail, but which will give him a large amount of general information as to the way in which climatic treatment is to be employed, will find Dr. Remondino's book to be the one that he wishes. Doubtless it was intended for this purpose, and, as we have just indicated, fulfils this purpose in a pleasant, useful manner. It is not a book which should be relied upon by the physician who wishes to place himself in an authoritative position as to the climate of the southwestern coast of the United States from a medical or scientific point of view.

A Practical Manual of Diseases of the Skin. By George H Rohé, M.D., assisted by J. Williams Lord, A.B., M.D.
Philadelphia: F. A. Davis & Co., 1892.

There seems to be but one other writer in the medical literature of the day who can write books upon such diverse subjects in such an authoritative manner as can Dr. Rohé, of Baltimore, and this writer is Dr. Dujardin-Beaumetz, of Paris, France. A twelve-month never passes by that these two contributors to the literature of the day do not place before us some work bearing upon one of the branches of medical science. If we mistake not, Dr. Rohé has not only written about and taught obstetrics, but also therapeutics and materia medica, and he now appears before us as the author of this work upon diseases of the skin, while during the last two years the first and second editions of his book on hygiene have appeared.

Mr. F. A. Davis has published this book in the "Physician's and Student's Ready Reference" series. Fewer prescriptions are scattered through the book than are commonly found in books upon diseases of the skin; but this is remedied by quite a large number of formulæ, which are placed in the back portion of the book in much the same manner as they appear in Fox's small book upon diseases of the skin. If there is room for another work on skin-diseases, this book will certainly have a sale which will be gratifying to the authors, and it is written in such a manner that to read it is a pleasure rather than a labor. In other words, it is one of those books in which the author has a sufficient command of his pen to lead the reader on from sentence to sentence almost unconsciously, and to leave in the mind a clear idea of what he has read.

The Essentials of Medical Electricity. By D. D. Stewart, M.D., and E. S. Lawrence, M.D. Illustrated.
Philadelphia: W. B. Saunders, 1892.

There is certainly no subject in which the average physician needs such rudimentary teaching as that of medical electricity, and there is probably no medical subject so difficult of lucid explanation. The authors of this little book have been wise in starting with the most elementary facts of electricity, and gradually carrying the reader along until they take him deeply into the subject. It is not to be thought, however, that the work is an exhaustive one; for, although it is copiously illustrated, it is practicably impossible to consider so large a subject in the short space of one hundred and sixty pages. For those who wish to obtain a condensed and fairly complete *résumé* of the subject, this book is a useful one, and to the practical physician it is much increased in value by the articles in the latter portion, directions being given as to the application of electricity to the proper points of the body for the relief of the various diseases in which electricity exercises a beneficial influence.

The A B C of the Swedish System of Educational Gymnastics. By Hartwig Nissen. Illustrated.
Philadelphia: F. A. Davis & Co., 1891.

This is a book which will prove exceedingly useful to school-teachers who wish to carry out calisthenic exercises with their pupils, as it possesses the advantage of great condensation mingled with clearness.

The exercises are divided into movements for different days, as, for example, "first

day's exercise" and "fifteenth day's exercise." If any child can go through the gymnastic movements called for on the fifteenth day without being severely strained and stiffened, we are surprised. Perhaps the term day is not meant to represent twenty-four hours, and we think that if this is the case the recommendations may be followed. Thus, the first day's exercise might be of use for four or five days, each successive day's exercise covering a similar period of time.

The illustrations, which are copiously scattered through the book, while small, are all of them clear and good. One of the most interesting points in connection with the exercises is that none of them require any apparatus except that which the ordinary school-room contains, most of the movements being simply those of the body, without the aid of any furniture. When support is required, however, the desks and benches of the ordinary school-room are readily employed.

PRINCIPLES OF BACTERIOLOGY. By A. C. Abbott, M.D., First Assistant, Laboratory of Hygiene, University of Pennsylvania, Philadelphia.
Philadelphia: Lea Brothers & Co., 1891.

During the last decade numerous works on this subject have been brought before the profession; yet, while many of them are exhaustive treatises, much of the laboratory technique requisite to the needs of the beginner was omitted or most scantily treated. On reading this manual of Dr. Abbott, any one familiar with the subject will readily recognize the fact that the book is not merely a compilation from other works, but one giving evidence of the originality of the author, as well as complete knowledge of the practical details of bacteriology.

In the classification, description of different micro-organisms, the formation of spores, etc., the author's views are in accordance with those of standard authors. His "scheme for the study of an organism" furnishes an excellent guide to the student, while the chapter on the study of water, air, and soil will be found of incalculable interest and value to the general practitioner as well as to the bacteriologist. Of equal importance is the chapter on disinfectants, antiseptics, and skin disinfection.

The omission of illustrations of the various micro-organisms, usually found in text-books on the subject, in no way detracts from the work or its value, since the student is not misled, as he often is, by such illustrations, as to the exact microscopical appearance of the various bacteria.

Any teacher of bacteriology will often have had occasion to observe how difficult it is for his pupils to reconcile the cuts given in their text-books with what they see under the microscope.

It will form a valuable addition to the literature of laboratory technique and bacteriological investigation. D. B. K.

VAN RIPER'S RECORD-BOOK FOR PHYSICIANS AND TRAINED NURSES.
Chicago: L. O. Van Riper, 1890.

This is one of the blank-books which are now so frequently prepared for the use of the physician or nurse, which are designed for the record of all facts in connection with a case of illness. At the top of each page is the date, with space for the doctor's and nurse's name, and columns are provided in which can be recorded the temperature, pulse, respiration, the urine, and its color and quantity, and the medicine. Space is also provided so that a record may be made at every hour of the day.

It has always seemed to us that these record-books lose their value by being bound in such a way that it is impossible to separate one page from another with any ease. If they had perforated stubs, so that they could be torn out and left with each nurse by the physician on his rounds, they would be very much more valuable.

At the back of this record-book is attached some half-dozen temperature charts, rather as an illustration of those which are provided by the publisher, than with any idea of their being a sufficient number to be used by the person who employs the main portion of the book. For those who are fond of using such record-books, this one will, doubtless, prove eminently satisfactory.

THE YEAR-BOOK OF TREATMENT FOR 1892.
Philadelphia: Lea Brothers & Co., 1892.

This year-book, which has been reprinted in this country for a number of years by Messrs. Lea Brothers & Co., is already quite well known to the profession of the United States. It represents, as well as it is possible for it to do in the short space of four hundred and fifty-six pages, the progress of therapeutics during the year 1891. Those who have had the issues for previous years will welcome this issue, and will be glad to add it to its predecessors. The articles by Dr. J. Mitchell Bruce, Mr. Edmund Owen, and Dr. A. E. Garrod are particularly attractive. The value of the book is much increased by the addition of a selected list of new books, new

editions, and new translations, which gives the reader a very good idea of the best medical literature of the year. There is also, as in previous editions, an index of authors and subjects.

THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX. Bristol, England: John Wright & Co., 1891.

This is a valuable book, prepared by collaborators both in America and England, who are all of them fully capable of extracting from current medical literature the best and most interesting practical material. The type is good and the work well done. The only point of criticism would seem to be that some of the information given is somewhat ancient. Thus there are a number of papers quoted which appeared in 1889, and, although most of these are sufficiently important to justify publication, it hardly permits the book to be called "A Medical Annual of 1891." On the other hand, much information of very recent date is given. As a still further evidence of the fact that this is intended as a year-book, and that it does not bear a mere title, without any definite meaning, we find in the back portion a number of blank pages, which are destined to be filled with useful formulæ, notes, private addresses, addresses of nurses, and for records of books and instruments lent, as well as for lists of drugs, appliances, and instruments needed during the course of the year.

THE CHINESE: THEIR PRESENT AND FUTURE; MEDICAL, POLITICAL, AND SOCIAL. By Robert Coltman, Jr., M.D. Illustrated.
Philadelphia: F. A. Davis & Co., 1891.

To those who are interested in the manner of life of the Chinese there can be no doubt that this book will prove of great interest. The author has had ample opportunity to become familiar with the ways of this people, which to us seem so peculiar; and, being a physician, has looked upon many of their customs from the point of view of a medical man, and in consequence has recognized and recorded many facts which the layman might have overlooked.

He considers prostitution, opium-eating, and the prevalence of glaucoma and other eye-disorders, of small-pox, and all of the eruptive fevers, giving interesting information as to their prevalence and severity. In view of the recent excitement concerning leprosy in this country, his chapter upon leprosy, as it appears among the Chinese, is most timely.

It should be understood, however, that the work is not a purely medical one, and that dry facts are sufficiently padded by interesting anecdote to produce a book which will interest as well as edify.

Correspondence.

LONDON.

(From our Special Correspondent.)

Glycerin Extracts of Tissues as Therapeutic Agents—The Discussion on Phagocytosis and Immunity at the Pathological Society.

Glycerin extracts of various organs and tissues seem just now to be in a fair way to become popular as remedial agents. Commencing with the testicle, Dr. Brown-Séquard has, it will be remembered, used a glycerin extract of this gland as a sort of elixir of life. His admirers and fellow-countrymen seem to have been more struck with the idea than ourselves, and quite recently M. Constantin Paul has employed similar sterile glycerin extracts of the gray matter of sheep's brains to the treatment of neurasthenia and allied conditions. In this country we cannot claim to have entirely avoided similar experiments with organic liquids of unknown constitution, for the readers of the GAZETTE will remember that a short time back I drew attention to a paper by Dr. G. R. Murray, of Newcastle-on-Tyne, on the use of extracts of the thyroid gland in myxœdema. I have now to chronicle a similar case, treated by the same means; this time by Dr. Beattie, of Dublin. The patient, who was undoubtedly myxœdematous, was treated first by massage alone, and then by massage combined with injections of thyroid extract. The glands were obtained from freshly-slaughtered sheep, and each served for three injections, which were given at intervals of two days. In this way five glands were used. As for the effect, this is said to have been truly marvellous, to have commenced even during the first week, and to have resulted practically in a cure, the patient rapidly regaining her normal appearance, distinctness of speech, and activity and precision of movements. "No physician," says Dr. Beattie, "seeing her now for the first time, could recognize the case as one of myxœdema." Truly now, more than at any other time, the statement is justified that therapeutics consists in the putting of substances of which we know little into bodies of which we know less.

At the Pathological Society during the last three meetings a very important discussion has been taking place on the question of the causation of immunity and the protective functions of phagocytes. The subject is so full of interest to all branches of the profession that I propose to give a summary of the remarks made.

Proceedings were opened by Dr. Sims Woodhead, who gave an account, necessarily somewhat brief, of the present position of the question. The question of immunity is that around which a very fierce battle is raging at the present time, and those who support any one theory have a sad tendency to disbelieve in the possible truth of any other. This is, however, only to a certain extent regrettable, for there is no more satisfactory man to deal with than a friendly unbeliever. His objections stimulate our invention, and his criticisms fully test both our powers of reasoning and the soundness of our thesis. Friendly unbelief is, therefore, the best spirit in which to attack theories with which we disagree. Dr. Woodhead early told us that he himself inclined to the theory of phagocytosis as an explanation of immunity, and he dealt first with the evidence in support of this theory. The question of physiological phagocytosis, and the beautiful experiments of Metchnikoff, showing the power possessed by certain amœbæ and other unicellular organisms of incepting and digesting various matters, are at the present time accepted by all, and it was these observations which ultimately led him—starting from a purely experimental and biological stand-point—to formulate first his theory of phagocytosis, and then that of phagocytic immunity. Dr. Woodhead then proceeded to describe the power of the lowly amœboid organisms (*a*) of acting as scavengers and removing innocuous material, (*b*) of attacking other living protoplasmic matters and living thereon. This latter function, though in a measure lost in the leucocyte through disease, may, according to Metchnikoff (and this is the key to his whole position) be regained under suitable conditions, so that cells which are usually scavengers may actually attack micro-organisms, to which, under ordinary circumstances, they would exhibit the greatest aversion. By a process of gradual stimulation, the cells are said to have restored to them these attacking powers, and it is this gradual acclimatization which is said to be produced in the cells by the various processes which have been found capable of giving rise to immunity in animals.

Metchnikoff himself draws a marked distinction between leucocytes and those cells derived from connective tissue, which he has called "macrophages." According to him, the functions of these latter cells, which may be seen to collect after a time in inflammatory areas, is to form a kind of second barrier against an invading microbe, and to take up and submit to further destructive processes microbes which may or may not have been killed by their previous enclosure in the smaller leucocytic cells or "microphages."

Now, why do leucocytes congregate in the neighborhood of microbes introduced into the body? As regards this point, it has been long known that some low organisms are (1) specially attracted to nutrient matters, (2) indifferent to matters from which there is nothing either to gain or to fear, (3) are absolutely repelled by other matters, most of which seem to exert a deleterious action upon them. De Bary found that, in certain instances, cells could be acclimatized to the action of such substances, and that, if these substances were introduced gradually enough, the cells gained the power of approaching and even of absorbing them. Metchnikoff conceived a similar process to take place in instances of acquired immunity against a virus, and we have now numerous instances of the fact that if poisons produced by specific microbes are normally capable of paralyzing the amœboid cells, these same cells may by careful preparation, by exposure to doses of the poison, at first very small, and then gradually increased, be ultimately trained to resist the poison, as found by the bacteria *in situ*, and even to incept these latter.

Mr. Kanthack did not in any way doubt the fact that phagocytosis occurred in the case of immune animals, but was this the sole cause of the immunity enjoyed by them? Personally, he could accept no one theory as exclusive, and while admitting the importance of the cell, he thought that the action of the fluids was also to be taken into account. He then proceeded to give a summary of the evidence in support of the idea of the importance of the fluids in causing immunity. He argued, however, from the serum to the living fluids in a manner which would allow the "phagocytists" room for legitimate criticism. He considerd that, comparing the serum of animals before and after immunization, there was good evidence

to prove that in the latter case it became (1) either more bactericidal, (2) or possessed greater attenuating powers, or (3) was more destructive to toxines of microbes. Chimiotaxis was an element which had been welcomed by the phagocytists, but Mr. Kanthack did not feel prepared to accept statements such as this,—viz., that "by means of suitable injections of bacterial products a negative might be changed into a positive chimiotaxis, and thus a cure be effected." He considered this as both mystical and unsatisfactory.

As regards the pure phagocytic theory of immunity, the following were among the objections to it which occurred to him: 1. Artificial fever-production in an animal gives rise to a great increase in the number of its leucocytes and wandering cells; yet even then, if inoculated with anthrax, the animal will succumb. 2. The occurrence and importance of vaccine fever during the process of immunization seems to point to something more than a mere change in the habits of a phagocyte. 3. Changes occur in all the tissues, for Emmerich has shown that animals could be protected by inoculation with the tissue juices of immune animals.

Dr. Wm. Hunter drew attention to the strong evil tendency shown by upholders of the chief theories of immunity to assume that disproof of one theory constituted proof of the other. It was evident that an immunized individual had some new power given him which enabled him to destroy microbes which entered his blood. For himself, he thought that this property was best explained in terms of cells; no new property of cells was necessary, merely a revival of a lost combative power. The arguments in favor of phagocytosis added, in his opinion, much to our knowledge with regard to immunity, whereas the humoral theory added but little, and was based on a perfect mountain of assumption.

Mr. T. J. Bokenham gave the results of a number of observations on erysipelas, which seemed, on the whole, to favor the views of those holding Metchnikoff's views. He had found that a rabbit which was inoculated with a virulent streptococcus erysipelatis developed within a short time a typical erysipelas, with abundant cellular infiltration of the seat of inoculation and the surrounding parts. This lymph contained during the onset and at the height of the disease innumerable leucocytes, and also free streptococci. Many of the leucocytes also were filled with micrococci. At this stage the lymph was highly infective; but if the exudation were examined after the acme of the disease had passed, there would be found (*a*) very few free streptococci, (*b*) very many cells containing streptococci, (*c*) very diminished infective powers. Mr. Bokenham had found also that if a rabbit were prepared by injection into it of sterile cultures of either the *B. prodigiosus* or *B. pyocyaneus*, subsequent inoculation of it with the streptococcus would produce not a local but a general infection, the microbes teeming in the blood. In this case the bacterial products appeared to have hindered the leucocytes from collecting around the seat of inoculation, and to have thus allowed the streptococci to become diffused through the system.

Mr. Ballance considered the question as a practical surgeon. No subject could be of greater importance to a surgeon than this one of immunity, for wounds, unless rendered immune to the action of bacteria and their products, would seriously endanger the life of a patient. In his opinion the fixed tissue-cells played a most important part in the process of repair, these being to his mind the chief agents in phagocytosis, and the leucocytes playing only a secondary part. He considered, however, that the processes whereby immunity is secured are essentially chemical, for all the known ferment-producing cells poured out their secretions during the process of digestion, and why should not the leucocyte and connective-tissue cell do the same when called upon to attack invading bacteria?

Mr. E. H. Haukin was inclined to adopt a *via media*, and considered that the two theories of immunity might be combined. On the one hand, there was much evidence, apparently irrefutable, that phagocytes played an important part in the production of immunity. On the other hand, the humoralists had shown that acquired immunity was often accompanied by increased bactericidal power of body fluids. It was not philosophical to ignore this latter fact. There were many cases in which, in a naturally immune animal, microbes multiplied until phagocytes arrived on the scene; there were, on the other hand, numbers of cases in which phagocytes attacked microbes and perished in the struggle. Thus an animal was only immune against a microbe if its leucocytes were immune against it. His discovery of alexines seemed to suggest an explanation of the fact that in one case cells and in another case microbes were triumphant. He consid-

ered that the victory of the cells was due to the presence of a particular alexine, which he believed was formed in the cell when this was injured. It was probably in the same manner that serum acquired bactericidal powers which were not possessed by the living fluids. Now, Dr. Wright had suggested that the alexines described by him were identical with tissue fibrinogen, but Mr. Haukin could not accept this view, and brought forward evidence against it, the chief of which was the fact that alexine solutions clotted lime-free plasma, whereas tissue fibrinogen did not do so. As he had previously stated, he considered alexine to be identical with the cell-globulin B. of Halliburton. The rest of his remarks were devoted to the consideration of the criticisms of French workers on his results, especially those which explained the bactericidal power of these substances rather to changes in character and density of media than to activity of the substances themselves. This was, he suggested, about as reasonable as if one said that a man who had died of arsenic-poisoning had succumbed merely to a change of diet.

Dr. Woodhead then replied very briefly on the whole question. He considered that all the positive evidence had been in favor of phagocytosis as the main cause of immunity, so far as the early stages of infective diseases were concerned, and it was the only theory on which both the experimental and clinical evidence could be explained. There seemed no real evidence in favor of the humoral theory. He certainly could not agree with Klein's statement that bacteria got into the leucocytes to avoid the bactericidal blood-plasma, for many of them were quite non-motile, and could not possibly push their way into the leucocytes.

The debate was concluded by the President, Sir George Humphry, who gave a brief review of the evidence which had been brought forward. He was delighted to see how much careful and valuable research was going on in this country, and how much it had accomplished even in the face of the false sentimentalism and prejudices against the true interests of humanity, which made work of this nature so difficult in England. Although the discussion had not settled the question of the causation of immunity, it had, without doubt, afforded plentiful food for reflection, and suggestions for fresh lines of research to workers of all nations, and had, therefore, abundantly fulfilled its object.

THE PAN-AMERICAN MEDICAL CONGRESS.

The Committee on Permanent Organization met at St. Louis, October 14, 15, and 16, 1891, and adopted a series of general regulations for the permanent organization of the Pan-American Medical Congress, and a series of special regulations for the government of the first meeting, and recommended that the incorporators adopt both series of regulations as the organic law of the Congress.

Pursuant to such regulations, the following general officers were elected,—viz., William Pepper, M.D., LL.D., Philadelphia, Pa., President; Abraham M. Owen, A.M., M.D., Evansville, Ind., Treasurer; Charles A. L. Reed, M.D., Cincinnati, Ohio, Secretary-General.

SPECIAL REGULATIONS OF THE FIRST CONGRESS.

1. The First Pan-American Medical Congress shall be held in the city of Washington, D.C., September 5, 6, 7, 8, A.D. 1893.

2. The registration-fee shall be ten dollars for members residing in the United States, but no fee shall be charged to foreign members. Each registered member shall receive a card of membership and be furnished a set of the transactions.

3. Contributors are required to forward abstracts of their papers, not to exceed six hundred words each, to be in the hands of the secretary-general not later than the 10th of July, 1893. These abstracts shall be translated into English, French, Spanish, and Portuguese, and shall be published in advance of the meeting for the convenience of the Congress, and no paper shall be placed upon the programme which has not been thus presented by abstract. Papers and discussions will be printed in the language in which they may be presented. All papers read in the sections shall be surrendered to the secretaries of the sections; all addresses read in the general session shall be surrendered to the secretary-general as soon as read; and all discussions shall be at once reduced to writing by the participants.

4. The chairman of the Committee on Organization shall cause the Congress to be incorporated under the laws of Ohio, and fifteen trustees shall be elected in accordance therewith, who, by by-laws and through the Executive Committee, shall supervise all receipts and disbursements by the treasurer in accordance with the laws of Ohio. The president, secretary-general, treasurer, the mem-

ber of the International Executive Committee for the United States, and chairmen of sections shall be *ex-officio* members of the Board of Trustees.

5. All nominations by the International Executive Committee must be in the hands of the chairman of the Committee on Organization by June 1, 1892, and in default thereof the Committee on Organization shall elect officers for countries thus delinquent.

6. The officers of each section shall consist of—honorary chairmen, who shall be residents of the constituent countries of the Congress; one executive chairman, who shall organize the work of the section, direct its deliberations, and deliver an inaugural address at its opening session; one English-speaking secretary and one Spanish-speaking secretary, residents of the United States, who shall co-operate with the executive chairman in conducting the correspondence of the section; and there shall be one secretary for each section, resident in each additional constituent country of the Congress.

7. The Auxiliary Committee for the United States shall be elected by the Committee on Organization, and shall consist of one member for each local medical society, or, in the absence of medical organization, then one in each considerable centre of population, which Auxiliary Committee shall co-operate with the Committee on Organization and with the general officers in promoting the welfare of the Congress. Nominations for the Auxiliary Committee shall be made by members of the Committee on Organization, each for his own State, except that in the failure of any member to make such nomination by January 1, 1892, or in the inadequacy of the same, the chairman of the Committee on Organization shall supply the deficiency.

8. The Board of Trustees shall designate seven members, including the president, treasurer, secretary-general, and member of the International Executive Committee for the United States, who shall comprise an executive committee, which shall transact all business of the Congress *ad interim*, in accordance with by-laws adopted by the Board of Trustees.

9. Amendments to these regulations can be made only by the International Executive Committee on a majority vote, ten members constituting a quorum, at any meeting of the Congress.

Pursuant to the laws of Ohio and the regulations adopted as above, and in accordance with nominations by the Committee on Permanent Organization, the incorporators elected fifteen trustees, as follows:

Dr. W. T. Briggs, Tennessee; Dr. Geo. F. Schrady, New York; Dr. P. O. Hooper, Arkansas; Dr. S. S. Adams, District of Columbia; Dr. H. O. Marcy, Massachusetts; Dr. J. F. Kennedy, Iowa; Dr. H. D. Holton, Vermont; Dr. L. S. McMurtry, Kentucky; Dr. N. S. Davis, Illinois; Dr. Levi Cooper Lane, California; Dr. I. N. Love, Missouri; Dr. Hunter McGuire, Virginia; Dr. J. C. Culbertson, Illinois; Dr. A. Walter Suiter, New York; Dr. C. H. Mastin, Alabama.

Drs. L. S. McMurtry (Kentucky), I. N. Love (Missouri), and W. W. Potter (New York) were designated to act as members of the Executive Committee.

The sections of the Congress shall be as follows:

(1) General Medicine, (2) General Surgery, (3) Military Medicine and Surgery, (4) Obstetrics, (5) Gynæcology and Abdominal Surgery, (6) Therapeutics, (7) Anatomy, (8) Physiology, (9) Diseases of Children, (10) Pathology, (11) Ophthalmology, (12) Laryngology and Rhinology, (13) Otology, (14) Dermatology and Syphilography, (15) General Hygiene and Demography, (16) Marine Hygiene and Quarantine, (17) Orthopædics, (18) Diseases of the Mind and Nervous System, (19) Oral and Dental Surgery, (20) Medical Pedagogics, (21) Medical Jurisprudence.

The organization of the Congress is complete in British North America, the British West Indies, the Spanish West Indies, Guatemala, Nicaragua, United States of Colombia, Brazil, Uruguay, Venezuela, and the Argentine Republic. It is confidently expected that the nominations from the remaining countries will be in by June.

It is expected to announce the completed organization of the Congress, its sections and auxiliary committees, domestic and foreign, by July 1, 1892.

On behalf of the Committee on Permanent Organization.

CHARLES A. L. REED, *Chairman.*
J. W. CARHART, *Secretary.*

A POWDER FOR CORYZA.

℞ Naphthaline in an impalpable powder, ʒvi;
Powdered boric acid, ʒvi;
Powdered camphor, gr. xv;
Extract of violets, gr. xv;
Essence of roses, gtt. xx.
Sig.—Mix and use as a snuff in coryza.

—*L'Union Médicale*, 1892.